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ging the 400 feet of rope. If he could succeed in doing this, he would anchor the rope, and by means of this life-line the others could ascend. To the other five men, trained mountaineers though they were, this course suggested by Mr. Kiser seemed like certain death. But there was no time for argument. Won by Mr. Kiser's perfect confidence in this plan, his large experience in cliff-work, and his matter-of-fact air, they reluctantly allowed him to start upward on his perilous climb.

Digging his spiked toes securely into the ice, step by step he mounted the precipice with his weight thrown well forward, clinging to the great wall with his toes; for, as everyone knows, the rule is to go up by your toes and come down by your heels.

The point he had in view as the place for anchoring the life-line was 400 feet above the crevasse, on the north ridge. This spot he reached in half an hour. He had brought some heavy iron spikes with him for anchoring the life-line, and making this fast, he signalled to the others to ascend.

One by one they climbed the 400 feet of slippery ice till all five at last had joined him. They now rejoiced to find snow beneath their feet. From this point the north slope, although broken up by crevasses of great beauty and depth, was not difficult, and about three o'clock they all stood on the summit—a ten hours' climb, and about the same length of time was spent in the descent.

After they had registered in the Record Book, the Mazama Box, which had been brought up from the point midway the east precipice, where it had been cached the night before, was buried in the snow of the summit. There were no rocks there to make a cairn for it. Who can say, threfore, what its fate will be? The plaything of the lightnings and the whirlwind, it may be swept down into the vast ice-river to the north, Roosevelt Glacier, where the avalanches may toss it from serac to serac in clouds of snowdust. Or from its resting place on the summit it may be flung by the winds over the eastern ice-wall, and becoming lodged in a crevasse, may travel down to the foot of the mountain, via Mazama Glacier, at the rate of fifty feet a year. Or it may settle deep down in the summit snows and there remain for ages yet to come.

List of Ascents of Mount Baker.

1. Edmund T. Coleman, August, 1868, a party of four men, southwest side via the middle fork of the Nooksack River (see Harper's Monthly, Vol. 39, p. 793).

2. Valentine V. Lowe, July, 1891, a party of eight men, via Glacier Creek or the north fork of the Nooksack.

3. Miss Nevins and party, August, 1891, via the middle fork of the Nooksack and Glacier Creek.

4. Prof. E. S. Ingraham, a party of four men, via the north fork of the Nooksack and Glacier Creek.

5. B. B. Dobbs, July, 1892, a party of four men, via the north fork of the Nooksack and Glacier Creek.

6. F. F. Handschy, John A. Lee, Chas. McPherson, F. W. Epley, Mr. Vail (all of Bellingham) and Joe Morowitz (of Baker Lake), guide. They ascended from Baker Lake, via Park Creek, following up Boulder Creek glacier to the Shoulder (from right side).

7. C. E. Rusk, of Chelan, Wash., and George G. Cantwell of Everett, Wash., September 3, 1903, from the Baker Lake side, climbing the east side of the main peak from the ridge between Park Creek and Boulder Creek glaciers. The route followed was one never used before, and the climb required eleven hours. The descent required about four hours. "We were overtaken by night before getting back to camp," writes Mr. Rusk, "and spent an hour working our way down through treacherous crevasses. We found the ascent both difficult and dangerous. I regard Baker as the most difficult of our great peaks."

8. J. R. Glascock, Jr., of Berkeley, Calif., alone, July 6, 1906, via Glacier Creek, the "Coal Hill Trail," and the northwest backbone. Mr. Glascock left his stick (marked) on the summit, which was found by Mr. Cornell.

9. C. C. Cornell, of Glacier, and Mr. Stewart, of Blaine, Wash., August 6, 1906, via Glacier Creek. Mr. Cornell, as evidence of his successful ascent, left a marked copy of the Mazama prospectus (Mt. Baker, 1906) on the summit, and this was found the following day by Mr. Kiser.

10. Mazama ascent—F. H. Kiser, C. E. Forsyth, Asahel Curtis, Martin Wanlich, C. M. Williams and L. S. Hildebrandt, August 7, 1906, northeast side, via the ridge between Wells Creek and Sholes glaciers, up Mazama glacier and the east precipice to the north ridge, ascent and descent 18 hours. They placed the Mazama Box and Record Book on the summit.

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A Record of

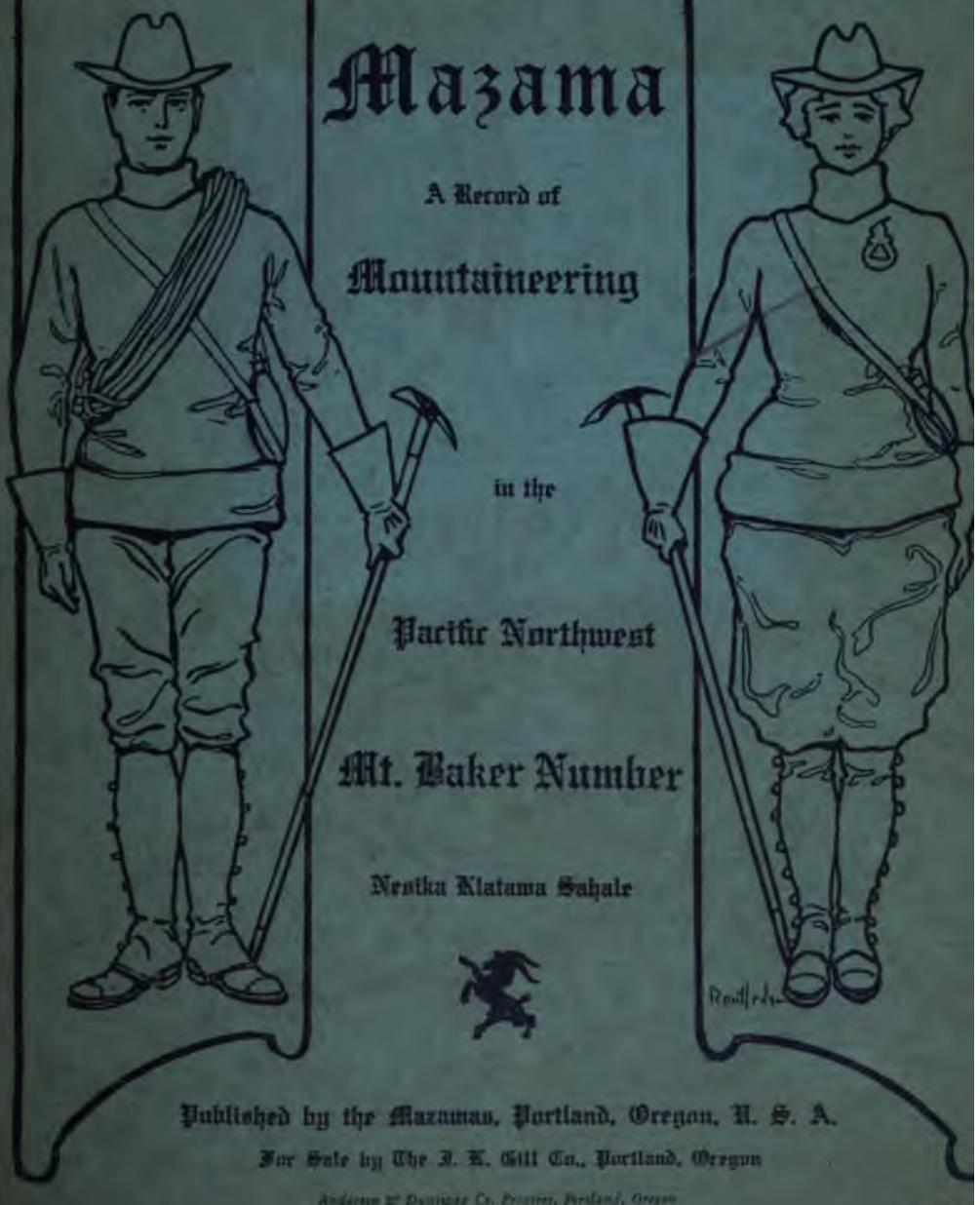
Mountaineering

in the

Pacific Northwest

Mt. Baker Number

Nesika Klatawa Sahale



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Mazama

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When Climbing a Mountain

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Mazamas preparing to tunnel through the 40 ft. wall of overhanging snow in the crevasse that cuts across the perilous 1500 ft. ice precipice, Northeast side of Mt. Baker. (Kiser ascent, 1906.)

Mazama

Volume 3 March, 1907 Number 1

Round About Mount Baker.

HENRY LANDES,
State Geologist, University of Washington

This beautiful mountain, standing well to the westward of the high Cascades, has had turned upon it the admiring eyes of many thousands of observers. Seen from a distance, it appears to have certain irregularities about the base, but at the top a symmetrical cone that has been evenly truncated. Scarcely an outcrop of rock is recognizable in the broad mantle of perpetual snow. Its grace and beauty, its apparent nearness and ease of ascent, all tempt the mountain-lover to leave his distant viewpoint and disprove the old assertion that "familiarity breeds contempt".

Mt. Baker, seemingly so easily approachable, is yet so difficult to reach that only a persistent mountaineer will have the temerity to successfully combat all obstacles and finally set foot upon the great snow cap. All about the foot of the mountain the great forest grows, and in some instances the undergrowth seems all but impassable. The trails are few and one feels that except for an occasional hardy prospector he is the first human being that has ever set foot in these mountain fastnesses. With every thousand feet of ascent the forest becomes more open, and except for the increasing steepness the climbing becomes easier. The upper limit of the forest is from 500 to 1000 feet lower than it is about Rainier. In other words the snow line descends farther about Baker than about Rainier, as one would expect from the difference in latitude.

In emerging from the forest to the open the nearer views of Baker dispel the idea that the mountain is but little eroded and that it is an example of a cone of very recent origin—too recent to have suffered much dissection. It is true the very top of the volcano appears to be a symmetrical dome with easy flowing curves, but within a thousand feet downward the divides between the snow-fields and glaciers begin to appear, and rising higher and higher above the intervening valleys, the ridges stretch away for

layed them so that by the time they reached the foot of the ice precipice 1,500 feet below the summit, it was four o'clock, too late to hazard ascent, for the pall of the great mountain shadow was upon them.

But Mr. Kiser, on whose shoulders rested the responsibility of bringing the Mazamas to the northeast side of Mt. Baker, had no idea of being defeated in his endeavor to reach the summit.

Meanwhile, on the same day that the first exploring party started up the mountain, we were given our test-climb up the precipitous snowfield that hangs on the side of the highest pinnacle (Coleman Peak) between camp and the summit of Baker. From the top of this pinnacle we looked over into the Promised Land where our explorers were at work.

The glaciers, whose seracs and caverns were striated with the purest blue, fascinated us beyond measure. Roped to an experienced leader, who numbered his followers on the life-line and exacted from them strict military discipline, we traveled over these immense fields of broken ice. Dr. Harry Landes, State Geologist of Washington, who was with us, established stations to measure the glacial movement from year to year. Those of us who were of a geological turn, investigated the sulphur caves, fumaroles, steam-vents and "blow-outs" that gave evidence that the volcanic fires within were not dead, but merely sleeping. M. W. Gorman, the well-known botanist, was busy studying the flora of the northeast slope, and the results of his labor, a contribution of inestimable value to science, will be found in another part of this bulletin.

Illuminative camp-fire talks were given by Prof. Landes, Mr. Gorman, Mr. Gleason, Dr. Barck and others on the phenomena that we encountered on our journeys of exploration. The people from Bellingham entertained us with talent of a high order and divers kinds of merry-making, to which Portland responded by giving an Indian fantasy by two picturesque chiefs, and a scene in which the fortunes of various Pacific Coast cities were told by a gypsy.

The naturalist found enthralling occupation in camp studying the bobbing courtesies and naive ways of the water-ouzel. At least a dozen of these ouzels had their home in the tossing spray of the water-fall near our commissary tent; they could be seen diving for food in the lake at any hour of the day, and so gentle and fearless were they that we obtained snap-shots of them less than four feet away.

There was a colony of shrieking marmots who spent half their time studying us from the talus of rocks that skirted Mazama Dome. Jumping mice scurried along deep down in the high grass, and inquisitive

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Mt. Baker from the lower lake (Twin Lakes), Northeast side

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The Kiser party on the 1500 ft. precipice of snow and ice reaching to the summit of Mt. Baker.

inter-glacier spaces, the polished and grooved rocks indicate the recent extension of the ice beyond its present limits. In the midst of the glaciers smooth, rounded rock masses or *nunataks* are appearing. At the time of the Mazamas' outing in 1906 nearly all of the snow of the previous winter had already melted. From that time until the close of the melting season —six weeks or longer—the loss of ice through wastage would mean a distinct recession. It may be that the gradual disappearance of the glaciers is coming about because of a decreasing snowfall, but much more evidence would be necessary before reaching a final conclusion on this point.

The glaciers of Baker are often conspicuous for their fine examples of seracs, and always for their great crevasses. The latter are of unusual size and wonderfully impressive. They admit of close examination and study and one can thread his way about and between them with unusual ease. The snowfields are wonderfully clean, and dazzling in their marvelous whiteness. Baker may be forbidding to one who would penetrate the deep forests of the foothills about the base of the mountain, or who would endeavor to scale the steep ice and snowfields and conquer the dome; but the lower frozen fields when once reached are easily crossed and recrossed and prove a source of the keenest delight to the mountaineer. Whenever good mountain roads are made to the Baker glaciers they will be visited yearly by thousands of people, so alluring and inviting are they because of their wonderful beauty and their artistic setting.

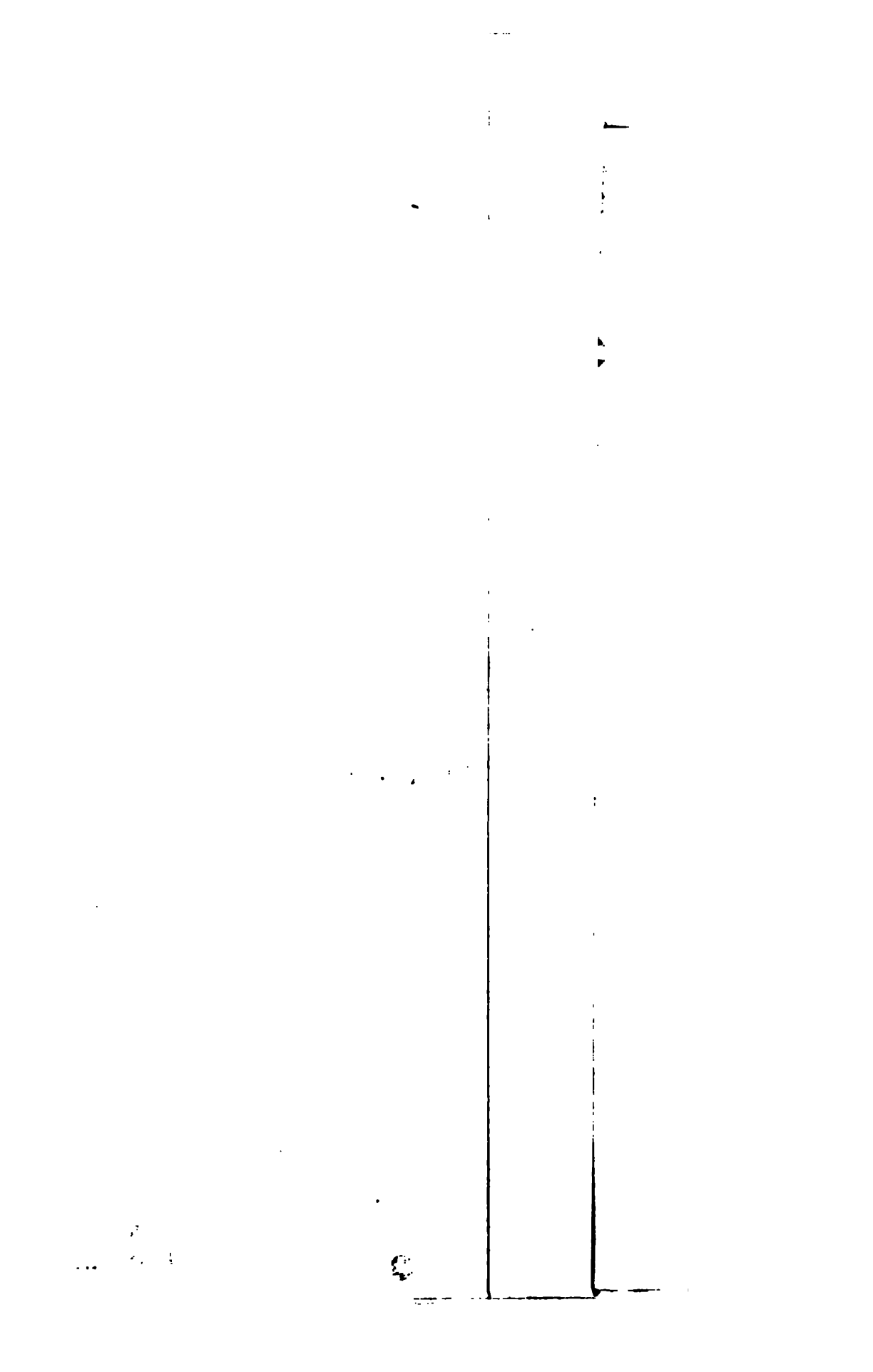
disintegrating rounded walls, rose about 300 feet in height, and quite precipitous on its north and west sides. Composed of loose pieces of lava of varying sizes loosely cemented by volcanic ash, so light that rain and melting snows easily washed it out, it was almost impossible for one to crawl over it without dislodging large rocks. One such rock, weighing several tons, apparently loosened by the elements, was seen to fall. There was no secure foothold or hand-hold; a little stone often proved to be the key to an avalanche of larger rocks.

The Kiser party having reached Cathedral Rock soon saw that the only route to success from their present position was to descend the knife-edge ridge to the precipitous east side snow-fields and net-work of crevasses. Mr. Kiser and party had with them but 150 feet of rope, and realizing that this was insufficient for the work in store for them, word was sent back to forward the 400 foot rope as rapidly as possible, as, said Mr. Kiser, shouting across a bleak quarter of a mile, "It is very cold and we will have to do something quick, if at all," for it proved to be a serious handicap—the slow work on the steep ice-slopes on the side of the mountain turned away from the sun. Mr. Sholes, Mr. Glisan, Mr. Forsyth and two or three more started with the rope, and their tedious and ticklish work over the lava cliff convinced them all that it would be foolhardy to lead the remaining members of the party over it, especially in view of the uncertainty of reaching the summit that day.

Descending from the ridge by means of the rope, over thirty feet of solid ice, in which Mr. Kiser cut steps, the scouting party, which now numbered about ten men, followed a steep 200-foot runway where the snow joined the rocks. At the base of this they crossed to the snow-fields and maze of crevasses along the eastern slope of the mountain; then turning abruptly toward the summit began a perilous ascent of the 1,500-foot precipice. Crossing a large crevasse, Mr. Kiser anchored the short rope. After proceeding up the wall about fifty feet, he shouted back to the party just arriving:

"It's no use; don't come up here with the long rope; we can't go any further tonight without freezing to death." The snow had frozen so that it was already necessary to cut steps, that side of the mountain having been in shadow for hours.

Returning, they discovered a route avoiding the climb over the lava cliff, by which the whole party might easily have proceeded from the Hill of Patience to the point where Mr. Kiser anchored the rope. But the leaders were now satisfied that only a few hardy climbers could scale the eastern precipice of ice and snow which led to the summit.



The Ascent of Mount Baker.

GERTRUDE METCALFE,
Historian of the Mazamas.

The wild glacier-torn uplift of rock-ribbed ice, known to geographers as Mt. Baker, stands guard over the most rugged, inaccessible and picturesque corner of the United States. Surrounded by a chaos of criss-cross pinnacled ranges carrying vast ice-fields broken into stupendous chasms, seracs, and glittering cascades that pitch down sharp cliffs into dark torrent-flashing canyons 3,000 feet below, this splendid snow-peak and sleeping volcano had, up to July, 1906, defied the approach of man on its northeast side. Trackless, impenetrable forests hide the beauty of the gem-like lakes and blossoming meadows at the base of the grand old mountain. From Austin Pass eleven of these glacial lakes sparkling in the cavernous depths below were seen at one glance. In these mountain-wilds on the northeast flanks of Mt. Baker, Washington, the Mazamas were encamped one hundred and twenty strong, last July and August.

The problem of blazing a trail to this unknown region at the base of the mountain was one to challenge the genius of the most shrewd and diplomatic men of affairs. Our outing committee therefore soon found themselves entangled in a network of difficulties, but they were not the sort of men to shirk responsibility. They were told that it was impossible to make the ascent from the northeast, that no one had ever approached the mountain from this side, that one could not even reach timber-line, so impenetrable were the forest jungles. Undaunted, however, our outing committee sent out one of its members, Mr. F. H. Kiser, to make a personal investigation. He spent two weeks travelling more than 150 miles on horseback and afoot with camera through those mountain fastnesses. Haggard and worn by this journey of exploration, he nevertheless turned in a glowing report of the savage grandeur of those snow-crested ranges and plunging canyons. Meanwhile a gracious offer had come from the Bellingham Chamber of Commerce. They would make a trail to snow-line, over which we could carry provisions by pack-train. On which side of the mountain would it be? Here the prospector put in a plea, for Mount Baker is the center of rich gold fields, and longing eyes had been cast upon the inaccessible wilds to the northeast. So the artist and the prospector carried the day, and July found the Mazamas encamped on the shores of a chain of mountain lakes among wild, battlemented cliffs—scenes of unrivaled grandeur and beauty.

it by two glaciers so broken by crevasses that it looked very doubtful if any way could be found to cross them. No camp could be made where we then were, the whole summit was lost in clouds, and it was late in the afternoon, so with great regret we turned toward camp. From our position on the western wall of the mountain we saw what looked like a better way to reach the ice-covered plateau that lay at the base of the pinnacle.

After a day of rest in camp we started once more for the mountain, planning to try the southwest slope between two of the hanging glaciers. From the eastern end of Table Mountain we dropped into a beautiful valley at the base of Shuksan ridge, following it until we were near the pass at the eastern end of the ridge. From the pass we studied the face of rock and ice for a possible route, and found one we thought could be climbed.

Crossing the head of the valley that still separated us from the mountain, we turned southward along the base of Shuksan, steadily climbing over talus and the moraine of a glacier, then along a narrow shelf little more than a crevice in the rock, under a waterfall that plunges down over sheer rocks for two hundred feet, until at last we rose above the valley.

Knowing that the ascent would require at least two days, we had brought extra provisions, and at sunset found a place on the shoulder of the mountain where there was plenty of dry wood. There we built a brush shelter to break the wind. We were then nearly 7000 feet high on the mountain and, without blankets, the night was sure to be very cold.

The haze of forest fires shut out all the under-world, and as the sun set behind Baker we seemed lost in the heavens. Beyond the crest of the mountain and the few trees along its edge nothing was visible until the first foothills of Baker cleared the haze. Dimly outlined against the sky above all this appeared the great mass of Baker like the Japanese drawings of Fuji-yama. The first of the stars had come out by the time we had gathered enough wood for the night's fire and had eaten supper, so with shoes under our heads we fell asleep.

In the morning, following the rock ridge upward between snowfields, we finally gained the great snow plateau we had been striving for so long. Flowing outward on all sides except the north, where the main summit blocked the way, was a system of glaciers large and beautiful for such a small peak. Across the intervening snowfields rose the pyramid-like pinnacle of the main summit piercing the blue of the sky. To the eastward a group of lesser pinnacles broke through the ice. Beyond, half-hidden in the all-obscuring haze, a thousand snow-caps or sheer rock-crags rose to view. This mass of mountains,—the Cascades rising to meet the Selkirks,—is the most beautiful group in Washington.

PHOTO BY A. CURTIS

Mr. Price building a cairn of rocks for the Mazama record on the summit of Shuksan.

PHOTO BY A. CURTIS

Overhanging rock, summit of Shuksan. This rock weighs several tons and juts out fully 20 ft. into mid-air.

Our way now lay along the western crest of the snowfield, and we could see, far below us, the crags reached in our first attempt. At the base of the pinnacle the climb changed to the hardest of rock work. A hundred yards of fair slope and the rocks rose at a steep angle, giving very little hold for hands or feet. We were following the knife-edge crest of rock, and the descent on either side was almost perpendicular. On one smooth rock face no crevice could be found and a number were broken with the back of a small hand axe. These gave an insecure hold, but with care we wiggled up. The next thing was to lift Price up the rock until he could reach a shelf above and drag himself up, then drop a line to me. Half way up there were splendid specimens of Moss Campion clinging in crevices, splashing the gray rocks pink and green. After a thousand feet of scrambling, with our alpenstocks trailing uselessly behind, we rounded a point of rock and saw, less than fifty feet away, the last crag of the summit. On the very top lay a rock overhanging more than twenty feet and weighing tons.

There was no trace of a previous ascent; no rocks had been disturbed and no cairn built, as is customary. Nearly every rock on top was scarred by lightning, some being fused to glass. From the appearance of the rocks it seemed impossible that anyone had ever trodden on that summit. From the loose slabs of rock we built a cairn, leaving a record of the ascent in a glass, claiming the first ascent in honor of the Mazama and Sierra Clubs.

The time spent on the summit would have been longer and more pleasant if we had not felt so uncertain of being able to get down the same way we came up. With care it could be done, but there was a great chance of one slipping and taking the other along when roped together.

A chimney opened close to the summit, and while the descent looked steeper from the top it proved easier than the crest. The side wall gave something to cling to, and the cracks were more open, giving better hand and foot holds. In descending this it was necessary to keep very close together because of the rocks loosened. In fifty minutes we were on the snowfield again and traveling as fast as possible toward camp. There was ten hours of hard traveling ahead of us yet, and no desire to camp in the open another night. Long snow slopes that had been climbed so slowly were coasted in a moment, and nothing was thought too steep. The long stretch of valleys seemed never-ending, and the first stars, coming at the close of the long summer day, found us on the pass south of Table Mountain. Turning, in the dim light, for a last look at the now conquered peak, there was borne to us through the night the roar, like the booming of cannon, of a mighty avalanche.

The White-Bark Pine

SONNET

C. H. Sholes

Where God's stern thunders shatter solitude,
With lightnings and the avalanche thy home.
The crippling Winds, hurled downward from the Dome
Where throned in naked space among her brood
Of shivering stars White Death her ancient feud
Maintains against encroaching Life, gloam
Sullenly down on thee, rifting the cloud-foam,
Uncurbed in that blanched, rock-wild infinitude.

Now grapple with the bellowing blast, great Bole,
Storm-racked and bleached by a thousand snows, sun-healed,
Rune-carved, writhing in gnarled agony
To lift the quenchless green of thine aureole,
Defying Death! Tortured, thou wilt not yield
Thine anguished strain for immortality.

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White Bark Pine (Pinus Albicaulis).

Vegetation of the Northeast Slope of Mount Baker

M. W. Gorman

As a member of the Outing Committee of 1906 it became the duty of the writer to precede the main party by one day for the purpose of "rustling" the blanket-bags and private tents into camp by cayuse pack-train in advance of the main party. We accordingly left Glacier Station —the eastern terminus of the B. B. & B. C. Railroad—on the morning of July 26, and arrived at the site of the main camp, 5000 feet above sea level, at 3:45 P. M.

During the outing, all the time that could be spared from active duty as a member of the committee was assiduously devoted to making a collection of plants in what was virtually a virgin field for a botanist.

From Glacier to Excelsior, some nine miles distant, the forest presented the usual appearance of the timbered region west of the Cascade Range in Northern Oregon and Washington, the prevailing trees being Douglas Spruce, Western Hemlock, Pacific Red Cedar, Black Cottonwood, Red Alder, Oregon Maple, Vine Maple and several species of willow, with an occasional Mountain White Pine, White Fir (*Abies grandis*) and *Abies amabilis*. Soon after leaving Excelsior—900 feet above sea level—the tree growth began to change. The White Fir, Red Alder and Oregon Maple disappeared, for a few miles the Mountain White Pine increased in numbers but ceased at a little above 2500 feet. Pacific Red Cedar and Western Hemlock soon followed. Douglas Spruce and Vine Maple continued to about 4000 feet, while *Abies amabilis* increased in quantity. The Black Hemlock began to appear at about 4000 feet, and became more abundant till camp was reached. Alaska Cedar appeared at a little above 4000 feet, but was only observed about Slate Mountain.

The White-bark Pine, Alpine Fir and Alpine Hemlock (*Tsuga Hookeriana*) were observed only above camp—5500 feet and upwards. At 6600 feet the last vestige of tree growth disappeared, the only representatives at this elevation being the Alpine Fir and Alpine Hemlock which occurred only on a few slopes as scraggly prostrate specimens not exceeding 3½ feet in height. Even the hardy White-bark Pine had to give up the struggle a little below this, where the last specimens were seen on the lee of a protecting ridge.

The main camp was located in a beautiful glade or mountain meadow —the last of a series of three—just south of Chain Lakes (known to prospectors as Galena Lakes), and to one who has never visited our mountains when the alpine flora is at its best, it would be difficult to describe the beauty of the scene.

These meadows were dotted with sub-alpine shrubs and plants which were at the time in full bloom and presented almost every variety of color, from the pure white of *Parnassia fimbriata* and *Cassiope Mertensiana* to the showy red of *Phyllodoce empetriformis* and *Mimulus Lewisii.*

On entering these meadows one was strongly impressed with the idea that the flora of this slope of Mount Baker more closely resembles that of Southeastern Alaska than it does the flora of the Cascade Range farther south.

The presence of such plants as *Veratrum viride, Oxyria digyna, Silene acaulis, Caltha leptosepala, Actaea arguta, Leptarrhena amplexifolia, Saxifraga Bongardi, Parnassia fimbriata, Ribes bracteosum, Ribes laxiflorum, Lutkea pectinata, Rubus pedatus, Rubus spectabilis, Sibbaldia procumbens, Sorbus Sitchensis, Epilobium anagallidifolium, E. latifolium, E. luteum, Heracleum lanatum, Cornus Canadensis, Pyrola secunda, Menziesia ferruginea, Kalmia glauca, Phyllodoce glanduliflora, Cassiope Mertensiana, Cladothamnus pyrolæflorus, Veronica alpina, Pinguicula vulgaris, Valeriana Sitchensis, Hieracium gracile, Aster foliaceus, Erigeron salsuginosus* and *Arnica latifolia,*—all of them common Alaska species,—and the entire absence of such plants as *Erythronium montanum, Erythronium parviflorum, Dodecatheon Jeffreyi, Gentiana calycosa, Mertensia laevigata, Smelowskia ovalis, Draba aureola, Gaultheria Myrsinites* and *Hulsea nana,* all of which occur on our mountains to the southward, tended to make this resemblance all the more striking.

This apparent resemblance was still farther borne out by the peculiarity so noticeable in some sections of Alaska, viz:—a paucity of species with a great number of individuals. In fact the hillsides and glades of the northwest slope would be a barren waste in appearance without the presence of the following twenty species, all of which occurred there in great profusion, viz:—

Carex. (No. 2663).
Leptarrhena amplexifolia.
Saxifraga Tolmiei.
Potentilla flabellifolia.
Rhododendron albiflorum.
Phyllodoce empetriformis.
Vaccinium caespitosum.
Mimulus alpinus.
Valeriana Sitchensis.
Arnica latifolia.
Oxyria digyna.
Saxifraga odontophylla.
Lutkea pectinata.
Lupinus. (No. 2520).
Menziesia ferruginea.
Cassiope Mertensiana.
Vaccinium macrophyllum.
Mimulus Lewisii.
Erigeron salsuginosus.
Senecio triangularis.

The area included in the collection made is strictly confined to the northeast slope of the mountain as indicated by the title of this article, and the altitudinal limits are from 4500 feet to 6700 feet elevation—or from a point on the pack-trail a little below where the path diverges to Slate Mountain to a little above the upper camp where the last vestiges of tree growth were seen. The latter, however, was not the highest point at which vegetation was seen. On August 6, while attempting to reach the summit, a *Carex* and a densely pubescent *Potentilla*, both in bloom, and a mat of *Lutkea pectinata* about 1½ inch high, without any appearance of flowers however, were observed on a small ridge which jutted out of the snow at about 8000 feet elevation, but unfortunately there was no opportunity to collect them.

The precise localities visited were the pack-trail from 4500 feet elevation to the main camp, the ground being more or less coniferous woods; the open glades or meadows from the vicinity of camp to Austin Pass; the slopes about and above Chain Lakes; Mazama Dome and the long talus slope at its base; Luna Cliff; Slate Mountain; and the slopes from the main camp (5000 feet elevation) to a rocky ridge a little above the upper camp (6500 feet elevation)—named tentatively in my notes Lasiocarpa Ridge from the sprawling masses of *Abies lasiocarpa* which cover its summit.

Most of the alpine meadows referred to above were plashed with small ponds, the one at Austin Pass having no less than eleven of them visible from a single view-point. As these ponds freeze solid in winter and are practically full of almost ice-cold water during the short summer they yielded little in the way of vegetation. The meadows themselves, however, were quite prolific in species such as *Carex Breweri, C. Pyrenaica, Juncus castaneus, Juncoides parviflorum melanocarpum, Tofieldia intermedia, Veratrum viride, Potentilla flabellifolia, Phyllodoce empetriformis, Phyllodoce glanduliflora, Cassiope Mertensiana, Pedicularis Groenlandica, Pedicularis racemosa, Pinguicula vulgaris, Valeriana Sitchensis, Erigeron salsuginosus, Arnica latifolia,* etc.

The borders of these meadows where they join coniferous woods yielded several species including *Spiraea densiflora, Sorbus Sitchensis, Viola palustris, Aster foliaceus,* etc. The rill banks were richer still and furnished many species such as *Tofieldia intermedia, Caltha leptosepala, Ranunculus Eschscholtzii, Saxifraga odontophylla, Mimulus alpinus, Veronica alpina,* etc.

Slate Mountain—the only spot visited which showed evidence of undisturbed conditions for a lengthy period, accordingly produced many

species not observed elsewhere. Among these were Alaska Cedar, several grasses, the only strawberry collected, also the only introduced plant seen about Mount Baker, viz:— *Rumex Acetosella,* the common Field Sorrel, and such species as *Eriogonum umbellatum, Polygonum bistortoides, Sedum divergens, Pachystima Myrsinites, Arctostaphylos Uva-ursi, Hydrophyllum nivalis, Hieracium albiflorum, Eucephalus Engelmanni, Solidago Tolmieana, Anaphalis Margaritacea,* etc. *Luina hypoleuca* was observed here in greater profusion than in any other locality yet visited in the Cascade Range.

The wakes of disappearing snow-banks and the rills in some instances formed by the melting snow, yielded in abundance some species not seen elsewhere or seen only sparingly, such as *Philonotis fontana alpina, Epilobium anagallidifolium, Petasites frigida,* etc. The first-named—a moss—was of such a brilliant pea-green color and grew in such masses that it was quite noticeable on the slopes at a distance of more than a mile, while *Petasites* could be found in all stages of growth from young budding plants at the snow-bank's edge to those in mature seed lower down the slope—in some instances less than 200 feet distant.

The time actively devoted to collecting and drying only amounted to some nine days in all (three days of precious time having been wasted in a futile attempt to scale the mountain at a point that good judgment did not justify). During this period 181 numbers were collected, embracing 11 species of parasitic fungi, 1 lichen, 2 mosses, 5 cryptogams and 138 phanerogams, the last named including 7 trees, 26 shrubs, and 105 herbaceous plants.

To describe the flora of Mount Baker as fully as that of Mount Rainier was described in Mazama Vol. II, No. 2, without a representative collection from both the south and the east side of the mountain would be impossible. It is therefore the hope of the writer to visit the south slope in the near future, as on that side with its more elevated snow-line and relatively higher temperature we may expect to find a much greater number of species than on the northeast slope.

The single lichen was collected on account of its great abundance on all the trees about timber-line; and the two mosses on account of their distinctive color making them so noticeable amongst the surrounding vegetation. Many other mosses were observed, but the time was too limited to admit of the careful collection to which they were entitled.

It is therefore to be hoped that a mycologist will accompany the next party that visits the mountain.*

LIST OF SPECIES

LICHENES.

Alectoria sp.

Growing in great profusion as tufts of greenish gray, slender threads on the bark and branchlets of all the trees about timberline, but not nearly so abundant on the stunted trees that occurred on the exposed ridges above, nor on those in the coniferous woods 1000 feet below this point. No. 2662.

BRYACEAE (MOSS FAMILY.)

Philonotis fontana alpina.

About rills, springs and in the wake of receding snow-banks near timberline. No. 2526.

Polytrichum sexangulare Florke.

On moist, rocky slopes above Chain Lakes, 5500 feet. No. 2568.

POLYPODIACEAE (FERN FAMILY.)

Phegopteris alpestris (Hoppe) Mett, Alpine Beech-fern.

Occurred sparingly on moist, rocky slopes about 5000 feet elevation, on the talus north of the main camp. No. 2504.

Polystichum lonchitis (L.), Roth, Holly-fern.

Grew sparingly on dry, rocky cliffs above Chain Lakes. No. 2579.

Cryptogramma acrostichoides R. Br. Rock-brake.

Rather rare in dry rock clefts about 6000 feet elevation, Slate Mountain. No. 2635.

Polypodium hesperium Maxon. Polypody.

In dry rock clefts above Chain Lakes. No. 2576.

LYCOPODIACEAE (CLUB-MOSS FAMILY.)

Lycopodium Sitchense Rupr. Alpine Club-Moss.

On moist slopes and grassy glades about timberline. Also collected on dry rocky ridges at 6000 feet elevation near Austin Pass. Nos. 2530, 2553, and 2652.

PINACEAE (PINE FAMILY.)

Pinus albicaulis Engelm. White-bark Pine.

Rather rare on this slope of Mount Baker. Collected on dry rocky ridges about 6000 feet elevation, where only small trees were seen. These, however, bore a fair amount of young cones. No. 2552.

Tsuga Hookeriana (Carr.) Oreg. Com. Alpine Hemlock.

Common on dry rocky slopes about Luna Cliff and above Austin Pass, where it occurred in clumps very much stunted and wind-beaten, but well-fruited with its small, mostly erect, purplish cones, about 1¼ inches long. By most botanists this tree is regarded as only an extreme alpine form of the next species. No. 2554.

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*The word "timberline" in this article means an elevation of 5000 feet above sea level, as this was the highest altitude at which perfect trees were found on the northeast slope. This, however, was not the extreme limit of tree growth, as sprawling, wind-beaten specimens about 3½ feet in height, of both *Tsuga Hookeriana* and *Abies lasiocarpa* were found as high as 6700 feet on some of the ridges. On the other hand, the tongues of some of the glaciers descended to 4500 feet and possibly lower.

The unnamed species have been sent to Washington, D. C., for classification, but the determinations have not yet been received at the time of going to press.

Tsuga Mertensiana (Bong.) Carr. **Black Hemlock.**
Fairly abundant from 4000 to 5000 feet altitude and the commonest tree about the main camp where it occurred mingled with the next species. Several specimens full three feet in diameter were observed. The tree appeared to be in a favorable habitat here and was well fruited with masses of pendant purplish cones about 2 inches long, which become brown in age. Its branchlets being soft and entirely free from pitch, were the favorite material for camp beds during the outing. No. 2680.

Abies amabilis (Dougl.) Forbes. Amabilis Fir, Lovely Fir.
Common from 3000 to 5000 feet altitude. It is second only to the Black Hemlock in point of numbers. Judging from the quantity of seedlings observed the species is thriving here, though very few cones were seen, and only one secured. About its upper limits this tree rarely exceeds 2 feet in diameter, but one specimen almost 4 feet in diameter was found a little below 5000 feet altitude, which is practically timberline on the northeast slope. No. 2590.

Abies lasciocarpa (Hook.) Nutt. Alpine Fir.
This species usually occurs on our mountains as a small, handsome, conical tree in the open glades or slopes about extreme timberline, but on the present trip it was observed only on rocky ridges between 5000 and 6700 feet altitude, where it occurred mostly in sprawling masses about 3 or 4 feet high and covered the ground like a mat. Collected near Luna Cliff and about the upper camp. No. 2551.

Chamaecyparis Nootkatensis (Lamb.) Spach. Alaska Cedar.
At no distant date the Alaska Cedar grew luxuriantly about Slate Mountain and on its southern slope, where some individual trees attained a diameter of 18 or 20 inches, but a forest fire of recent years wrought such havoc in this locality that not a single grown tree of it survived. Those trees that were not burnt outright were so badly scorched that they perished, and the species here at present is only represented by saplings and small trees from 6 to 15 feet in height. The largest of these, however, were found to be already bearing a fair amount of fertile cones. No. 2632.

Juniperus Sibirica Burgsd. Dwarf Juniper.
The Dwarf or Alpine Juniper is not common on this slope of Mount Baker. Collected on dry rocky cliffs about Mazama Dome. No. 2560.

POACEAE (GRASS FAMILY.)

Phleum alpinum L. Mountain Timothy.
This handsome alpine grass bears a close resemblance to the cultivated Timothy of our fields in all respects except its smaller size. Common on Slate Mountain. No. 2629.

Agrostis aequivalvis Trin. Bent-Grass, Red-Top.
Rather rare, on moist, grassy slopes about Chain Lakes. No. 2589.

Agrostis hyemalis (Walt.) B. S. P. Rough Hair-grass.
Not uncommon on dry slopes in brule on Slate Mountain. No. 2622.

Agrostis exarata, Trin.
Occurs rather sparingly on moist slopes about Chain Lakes. No. 2676.

Deschampsia atropurpurea (Wahl.) Scheele. Mountain Hair-grass.
Fairly abundant in open glades above Chain Lakes. No. 2567.

Trisetum spicatum molle (Michx.) Piper. Narrow False-oat.
On rocky slopes between the main camp and Mazama Dome. Not common. No. 2562.

Poa sp. Blue-grass.
Rare on dry slopes about summit of Slate Mountain. No. 2631.

Sitanion elymoides Raf. Rye-grass.
Common on dry slopes, Slate Mountain. No. 2630.

CYPERACEAE (SEDGE FAMILY.)

Carex Breweri Boott.
Common on open glades and creek banks, Chain Lakes. No. 2653.

Carex sp.
Quite common in alpine meadows about the main camp, where it constituted the principal forage plant for our pack-horses. No. 2663.

Carex Pyrenaica Wahl.
In alpine meadows about the main camp, but not so abundant as the last species. Greedily eaten by our pack-horses, and as a forage plant it may be considered the second in importance here, as none of the true grasses grew in sufficient quantity to supply forage. No. 2664.

JUNCACEAE (RUSH FAMILY.)

Juncus castaneus Smith. Chestnut Rush.
Common on moist slopes and creek banks about Chain Lakes. No. 2649.

Juncus falcatus E. Meyer.
On open glades and slopes about Chain Lakes. No. 2650.

Juncoides parviflorum (Ehrh.) Coville. Small-flowered Wood-rush.
Not uncommon on dry slopes about Mazama Dome. No. 2555.

MELANTHACEAE (BUNCH-FLOWER FAMILY.)

Tofieldia intermedia Rydb. Tofieldia.
Common on very moist slopes and creek banks between the main camp and Chain Lakes. No. 2531.

Stenanthium occidentale A. Gray. Western Stenanthium.
Very rare. Only observed in a moist grassy glade near the point where the path to Slate Mountain leaves the Wells Creek trail. No. 2545.

Veratrum viride Ait. False Hellebore.
Young plants of this species were collected in open glades near the main camp. It was also observed in other similar situations about timberline, but for some unaccountable reason not a single specimen was found in flower. No. 2654.

CONVALLARIACEAE (LILY-OF-THE-VALLEY FAMILY.)

Clintonia uniflora (Schult.) Kunth. One-flowered Clintonia.
Common in coniferous woods below camp. This pretty little wood-lily with its white wax-like petals and blue inedible berries did not quite come within our limits, the highest point at which it was observed being only 3500 feet altitude. No. 2670.

Vagnera amplexicaulis (Nutt.) Greene. Solomon's Seal.
In coniferous woods from 4600 feet altitude downwards. Nearly all the plants observed were badly infested with a species of caterpillar that had almost denuded them of foliage. No. 2666.

Streptopus roseus Michx. Sessile-leaved Twisted Stalk.
Not uncommon on the borders of alpine meadows and glades between the main camp and Wells Creek. This plant was already past the flowering season on our arrival and fruiting specimens of it were extremely rare. Nos. 2587 and 2639.

ORCHIDACEAE (ORCHID FAMILY.)

Limnorchis stricta (Lindl.) Rydb. Rein-orchis.
This inconspicuous orchid with its spikes of greenish-white flowers was common on moist slopes and stream banks between the main camp and Chain Lakes. No. 2515.

Ophrys caurina (Piper) Rydb. Tway-blade.
Occurred sparingly in coniferous woods up to 5000 feet altitude. No. 2644.

Ophrys cordata L. Heart-leaved Tway-blade.
Rare in marshy ground 4800 feet, near Slate Mountain. No. 2538.

Peramium decipiens (Hook.) Piper. Rattlesnake Plantain.
This well-known little orchid with its curiously blotched leaves, does not properly come within our limits, as it was not observed above 3000 feet. It was, however, quite common along the trail from that altitude downwards. An infusion of this plant is used by the Indian women of most of the Puget Sound tribes for its reputed virtue as a promoter of fecundity. No. 2672.

SALICACEAE (WILLOW FAMILY.)

Salix sp. Willow.
This was the only willow observed above 4500 feet. It occurred as a shrub about 4 feet high on the borders of alpine meadows and along stream banks near timberline. No. 2516.

BETULACEAE (BIRCH FAMILY.)

Alnus sinuata (Regel.) Rydb. Mountain Alder.
A shrubby alder about 10 feet high. Common on moist slopes and stream banks about timberline. No. 2656.

POLYGONACEAE (BUCKWHEAT FAMILY.)

Eriogonum umbellatum Torr.
Common on dry grassy slopes about 6000 feet on Slate Mountain. No. 2625.

Rumex Acetosella L. Field or Sheep Sorrel.
This, the only introduced plant observed on Mount Baker, was not uncommon on Slate Mountain, about 5800 feet. It has probably been accidentally introduced by prospectors, as this region does not appear to have ever been sheeped over. No. 2618.

Oxyria digyna Camptd. Mountain Sorrel.
Quite abundant on moist, rocky slopes and in rock crevices about Chain Lakes. No. 2534.

Polygonum bistortoides Pursh. Alpine Knotweed.
This plant with its slender stems and dense spike of white flowers was quite conspicuous on the dark green sedgy slopes of Lasiocarpa Ridge at 6600 feet. It was also collected on grassy slopes near the summit of Slate Mountain, but was not abundant in either locality. Nos. 2602 and 2627.

PORTULACACEAE (PURSLANE FAMILY.)

Montia fontana L.

Only one specimen of this plant was observed within our limits. It occurred on a moist creek bank near the main camp. No. 2679.

SILENACEAE (PINK FAMILY.)

Silene acaulis L. Moss Campion.

A moss-like plant with small but showy pink flowers. It occurs sparingly on dry rocky ridges at 6600 feet on Lasiocarpa Ridge. Also collected on dry rocky cliffs above Chain Lakes. Nos. 2610 and 2614.

Silene Macounii S. Wats. Macoun's Catch-fly.

Occurs sparingly on dry, rocky cliffs and talus above Chain Lakes. No. 2570.

Alsine crispa (C. & S.) Holz. Alpine Chickweed.

On moist slopes and rill banks near the main camp, not abundant. No. 2595.

Alsine sp.

Occurs sparingly on moist stream banks about 1 mile east of the main camp. No. 2612.

Sagina Linnaei Presl. Arctic Pearlwort.

Rare on dry rock cliffs above Chain Lakes. No. 2574.

RANUNCULACEAE (BUTTERCUP FAMILY.)

Caltha leptosepala D. C.

Common in wet places near the main camp. No. 2508.

Actaea spicata arguta (Nutt.) Torr. Baneberry.

Fairly abundant in moist woods from 4000 to 5000 feet altitude. Nos. 2540 and 2665.

Aquilegia formosa Fisch. Columbine.

A tall, showy, red—(sometimes red and yellow) flowered plant, much visited by humming-birds. It is a lowland plant but appears to be quite at home here as it also is in Southeastern Alaska. Collected on grassy slopes near Chain Lakes and on Slate Mountain. Nos. 2549 and 2637.

Pulsatilla occidentalis Wats. Western Anemone.

A very pubescent plant with much divided leaves and showy white flowers. Even in fruit the large woolly heads make it an attractive plant. It was already past flowering on our arrival in camp. Collected on dry rocky slopes above Chain Lakes. No. 2582.

Ranunculus Eschscholtzii Schlecht. Buttercup.

Common about moist stream banks and in the wake of melting snow-banks near the main camp. No. 2533.

BRASSICACEAE (MUSTARD FAMILY.)

Cardamine sp., Bitter-cress.

Rather rare on moist, rocky slopes above Chain Lakes. No. 2535.

Arabis Lyallii S. Wats. Lyall's Rock-cress.

Rare on dry rocky cliffs above Chain Lakes. No. 2581.

CRASSULACEAE (STONECROP FAMILY.)

Sedum divergens S. Wats. Stonecrop.

A small, rock-loving plant about 2½ inches high, with yellow flowers and thick, fleshy, almost globular leaves. It occurs sparingly on rocky cliffs above Chain Lakes and on grassy slopes near the summit of Slate Mountain. Nos. 2575 and 2626.

SAXIFRAGACEAE (SAXIFRAGE FAMILY.)

Leptarrhena amplexifolia (Sternb.) Ser.

A tall plant with large evergreen leaves and inconspicuous greenish-white flowers. In fruit, however, the pods become red or reddish-purple and are quite showy. It is more plentiful on this slope of Mount Baker than we have ever seen it elsewhere. Collected on moist slopes and stream banks near the main camp. No. 2593.

Saxifraga odontophylla Piper. Saxifrage.

A new species described in Piper's Flora of Washington, Oct. 8, 1906. This plant for a long time has passed in our herbaria as *S. aestivalis,* Fisch., and as *S. punctata,* L. Quite plentiful on moist stream and pond banks near the main camp. In no case was it observed about stagnant ponds or those without flowing water. No. 2507.

Saxifraga bronchialis L.

Abundant on rocky cliffs at the base of Mazama Dome, also observed on Slate Mountain. No. 2561.

Saxifraga Bongardi Presl. Bongard's Saxifrage.

Occurs sparingly on moist, mossy banks, in coniferous woods a little below the main camp. No. 2537.

Saxifraga Tolmiei T. & G. Tolmie's Saxifrage.

One of the commonest of our alpine saxifrages, ranging from British Columbia to Southern Oregon. This plant usually occurs in mats on moist ground and in the wake of melting snow-banks, where its glossy green leaves and white flowers make it noticeable despite its diminutive stems which sometimes do not exceed an inch in height. Very abundant on moist, grassy slopes and stream banks about timberline. No. 2528.

Tiarella unifoliata Hook. False Mitrewort.

Fairly abundant in coniferous woods up to 5000 feet. No. 2642.

Mitella Breweri A. Gray. Bishop's Cap.

Occurs sparingly in coniferous woods about 5000 feet. No. 2642.

Mitella pentandra Hook.

On moist, grassy slopes near timberline. Not abundant. No. 2585.

PARNASSIACEAE (GRASS-OF-PARNASSUS FAMILY.)

Parnassia fimbriata Banks.

Common on moist, grassy slopes and stream banks between the main camp and Chain Lakes. No. 2547.

GROSSULARIACEAE (GOOSEBERRY FAMILY.)

Ribes bracteosum Dougl. Fetid Currant.

Plentiful in moist woods along the main trail up to 4500 feet. No. 2542.

Ribes sp.

Fairly abundant in coniferous woods along the main trail up to 4500 feet. No. 2541.

Ribes laxiflorum Pursh. Currant.

Rather rare on grassy slopes about 5000 feet at the head of Wells Creek. No. 2599.

Ribes sp.

On dry, grassy slopes about 6000 feet, on Slate Mountain. No. 2621.

ROSACEAE (ROSE FAMILY.)

Spiraea densiflora Nutt. Red Spiraea.

This handsome little shrub with its dense corymbs of rose-colored flowers, was quite abundant on moist, grassy slopes in the woods about the main camp. It was frequently used as a table decoration during the outing. No. 2583.

Lutkea pectinata (Hook.) Kuntze.

A small plant, 1½ to 6 inches high with palmately cleft leaves and a dense raceme of inconspicuous white flowers, but very noticeable on account of its great abundance, not only around the main camp, but on most of the higher slopes and ridges up to the extreme limit of vegetation—say 8000 feet. It occurs in carpet-like mats, the stems decreasing in height as the altitude increases, but no flowering specimens were seen about its upper limits. It was quite abundant about the upper camp—6500 feet, where with one or two diminutive sedges it formed the only forage for our cayuses while we were stationed at this point. No. 2505.

Rubus leucodermis Dougl. Blackcap.

The most delicious berry seen during the outing. The fruit is dark purple when ripe with a white bloom and an agreeable flavor. It occurred in great abundance on old brules and open spots in the forest along the trail from 4500 feet downwards. No. 2668.

Rubus parviflorus Nutt. Thimble berry.

Collected in old brules in the forest near the Wells Creek trail at 4500 feet, where it occurred in limited quantity. It was, however, quite abundant at lower elevations. No. 2667.

Rubus pedatus Smith. Trailing Dewberry.

A trailing herbaceous plant with a white flower resembling that of a strawberry, but bearing scanty red fruit that when fully ripe is readily detached from the receptacle like a raspberry. It occurred sparingly in coniferous woods up to 5000 feet. No. 2517.

Rubus spectabilis Pursh. Salmon berry.

Rather rare in coniferous woods near the main camp. No. 2655.

Fragaria cuneifolia Nutt. Strawberry.

This strawberry was ripe at the time of our visit to Slate Mountain—Aug. 3, and the fruit though small proved to be juicy and of fine flavor. Occurs sparingly on grassy slopes about the summit of Slate Mountain. No. 2628.

Potentilla flabellifolia, Hook. Alpine cinquefoil.

A common plant on mountain meadows. Its leaves somewhat resemble those of a strawberry, but it has bright yellow flowers like a buttercup. Very abundant on open glades and in the lee of fallen logs or rocks. No. 2657.

Dasiphora fruticosa tenuifolia (Willd.) Rydb. Shrubby Cinquefoil.

A handsome shrub with showy yellow flowers like a cinquefoil. It is a very common shrub north of Cook Inlet in Alaska. Fairly abundant on rock cliffs and talus about the base of Mazama Dome. No. 2559.

Sibbaldia procumbens L. Sibbaldia.

Rather rare on dry, rocky slopes, Lasiocarpa Ridge. No. 2661.

POMACEAE (APPLE FAMILY.)

Sorbus Sitchensis Roem. Mountain Ash.

A shrub somewhat resembling the Rowan tree or European Mountain Ash of our gardens. Occurs sparingly in open woods near the main camp. No. 2514.

FABACEAE (BEAN FAMILY.)

Lupinus sp. Lupine.

Common on alpine meadows and open, grassy slopes near Chain Lakes. No. 2520.

With the above there occurred sparingly what appears to be a form of it, with pink flowers instead of the usual blue. No. 2566.

Lupinus sp.

A species with very deeply-set and somewhat ligneous roots. Occurs sparingly on grassy slopes, Lasiocarpa Ridge. No. 2605.

ANACARDIACEAE (SUMAC FAMILY.)

Rhus glabra occidentalis? Sumac.

A low shrub without flowers or fruit, collected on grassy slopes near Chain Lakes, is, we believe, referable to this species. Only two specimens were seen. No. 2565.

CELASTRACEAE (STAFF-TREE FAMILY.)

Pachystima Myrsinites Raf. Mountain Lover, Oregon Box.

A low evergreen shrub, 15 to 30 inches high, with tiny, inconspicuous flowers. Fairly abundant on rocky slopes, Slate Mountain. No. 2634.

ACERACEAE (MAPLE FAMILY.)

Acer circinatum Pursh. Vine Maple.

This tree hardly comes within the limits laid down at the beginning of this article, as it was not observed above 4000 feet, but was collected chiefly on account of the foliage being badly infected by a parasitic fungus. It does not appear to be at home at this elevation, as fruiting specimens were rarely to be seen. No. 2671.

VIOLACEAE (VIOLET FAMILY.)

Viola palustris L. Marsh Violet.

Rare in sphagnous slopes about 5000 feet altitude, near the main camp. No. 2586.

ONAGRACEAE (EVENING PRIMROSE FAMILY.)

Epilobium anagallidifolium Lam. Pimpernel Willow-herb.

Very abundant on moist, mossy slopes, about springs and rills and in the wake of melting snow-banks about timberline. Nos. 2518 and 2525.

Epilobium luteum Pursh. Yellow Willow-herb.

Very abundant about springs and rill banks at 4500 feet altitude near the main trail. No. 2539.

Epilobium **sp.**

Very abundant. Occurs in tufts about springs and moist stream banks at 4800 feet. Head of Wells Creek. No. 2611.

Epilobium angustifolium L. Fireweed.

Occurs sparingly on grassy slopes about 5000 feet, at the head of Wells Creek. More abundant on dry slopes of Slate Mountain at 6000 feet. Nos. 2598 and 2615.

Epilobium latifolium L. Arctic Willow-herb.

A species much resembling the preceding, but with shorter stems, 4 to 10 inches high, thicker leaves and more showy reddish-purple flowers. Occurs sparingly on sandy slopes and moraines at 5500 feet, about the head of Wells Creek. No. 2601.

APIACEAE (CARROT FAMILY.)

Washingtonia purpurea C. & R. Sweet-cicely.

A common plant at sea-level in Alaska and British Columbia, but ascending to timberline here. Not infrequent on grassy spots in coniferous woods near the main camp. Nos. 2584 and 2641.

Lomatium Martindalei angustatum C. & R. Wild Parsley.

Occurs sparingly on dry, rocky slopes and talus at 5500 feet, near the base of Mazama Dome. No. 2557.

Heracleum lanatum Michx. Cow Parsnip.

A tall plant, 3 to 5 or 6 feet high, with large leaflets 3 to 8 inches broad and spreading umbels 4 to 10 inches broad, of faintly fragrant white flowers. A well-known Eastern botanist characterizes it as "a rank and poisonous weed"; nevertheless the stems and leafstalks are eaten in unlimited quantities, much as we do celery, by all the Coast tribes of Indians from Northern California to Alaska. Not uncommon on open spots in moist woods along the Wells Creek trail up to 4500 feet. No. 2543.

CORNACEAE (DOGWOOD FAMILY.)

Cornus Canadensis L. Bunch-berry.

Occurs sparingly on moist, grassy slopes up to 5000 feet. Collected about Chain Lakes. No. 2564.

PYROLACEAE (WINTERGREEN FAMILY.)

Pyrola secunda L. One-sided Wintergreen.

A small slender plant with a one-sided raceme of greenish-white flowers, hence the common name. Fairly abundant in moist woods at 4500 feet near Slate Mountain. No. 2544.

MONOTROPACEAE (INDIAN-PIPE FAMILY.)

Pterospora Andromedea Nutt. Pine-drops.

An uncanny-looking, leafless, erect plant, 10 to 20 inches high, light brown in color and viscid throughout. A decoction of it is used by the kloochmen of some of the Northwest Indian tribes as a dressing for the hair. The species does not quite come within our limits, as it was not observed above 3000 feet altitude. Occurs in open spots in coniferous woods along the Wells Creek trail. No. 2673.

ERICACEAE (HEATHER FAMILY.)

Kalmia glauca microphylla Hook. Swamp Laurel.

A small shrub, 6 to 10 inches high, with evergreen leaves and small lilac-purple flowers. Rare on moist slopes between Mazama Dome and Austin Pass. No. 2674.

Rhododendron albiflorum Hook. White-flowered Rhododendron.

Very abundant on the borders of alpine meadows and in open woods about the main camp. The foliage of this shrub was badly affected here by a parasitic leaf fungus. No. 2501.

Menziesia ferruginea Smith. Rusty Menziesia.

Fairly abundant in open woods about the main camp and Chain Lakes. No. 2513.

Phyllodoce empetriformis (Smith) D. Don. Red Heather.

A small evergreen shrub growing in clumps and bearing showy masses of bell-shaped, rose-colored flowers. Very abundant in alpine meadows and on grassy slopes near the main camp. No. 2502.

Growing with the above there occasionally occurred a small clump in which the flowers were white with red margins. We have tentatively classed it as a form of *P. empetriformis,* but it may eventually prove to be a new species. No. 2532.

Phyllodoce glanduliflora (Hook.) Coville. Glandular Heather.

Much like the preceding, but with greenish-white, nearly closed flowers. Occurs sparingly on grassy slopes about the head of Wells Creek. No. 2527.

Cassiope Mertensiana (Bong.) D. Don. False Heather.

An evergreen undershrub, 5 to 10 inches high, with showy, white, bell-shaped flowers. Very abundant on open, grassy slopes about the main camp and Chain Lakes. Nos. 2503 and 2536.

Arctostaphylos Uva-ursi (L.) Spreng. Kinnickinnick.

Fairly abundant on dry, rocky slopes up to 6000 feet on Slate Mountain. No. 2633.

Cladothamnus pyrolaeflorus Bong.

An erect shrub, 3 to 5 feet high, with reddish flowers, somewhat resembling a Rhododendron. Reported by Mr. H. W. Gleason as growing on grassy slopes at the head of Park Creek.

VACCINIACEAE (BLUEBERRY FAMILY.)

Vaccinium caespitosum Michx. Dwarf Blueberry.

A low shrub, 6 to 12 inches high. Abundant in open woods and on rocky slopes near the main camp. No. 2660.

Vaccinium macrophyllum (Hook.) Piper. Thin-leaved Blueberry.

A medium-sized shrub, 1 to 4 or 5 feet high. One of the most productive and in many respects the best of the blueberries. Fairly abundant in open woods near the main camp and in brules on Slate Mountain. Nos. 2620 and 2659.

POLEMONIACEAE (PHLOX FAMILY.)

Phlox diffusa Benth. Phlox.

A delicate, prostrate plant with pale blue or pinkish flowers, and usually occur-

ring in mats. Fairly abundant on rocky slopes near the base of Mazama Dome. No. 2556.

HYDROPHYLLACEAE (WATERLEAF FAMILY.)

Hydrophyllum albifrons Heller. Waterleaf.
Fairly abundant on dry, grassy slopes in brules near the summit of Slate Mountain. No. 2624.

SCROPHULARIACEAE (FIGWORT FAMILY.)

Penstemon Menziesii Davidsonii (Greene) Piper. Davidson's Beard-tongue.
A dwarf, depressed, but attractive plant, or rather undershrub, with thickish evergreen leaves and showy lilac-purple flowers. Fairly abundant on the summit of Mazama Dome and on dry, rocky slopes above Chain Lakes. Nos. 2550 and 2569.

Penstemon procerus, Dougl. Blue Beard-tongue.
A slender-stemmed plant with blue flowers, and less showy than the preceding. Abundant on rock cliffs above Chain Lakes. No. 2571.

Mimulus Lewisii Pursh. Lewis's Monkey-flower.
A tall plant, 10 to 20 inches high, more or less viscid and bearing very conspicuous rose-red flowers. Very abundant on moist, grassy slopes near the main camp. Also collected on dry, rock cliffs above Chain Lakes, where it was found to be considerably dwarfed, the stems 6 to 10 inches high and the flowers a pale dull red. Nos. 2511 and 2580.

Mimulus alpinus (A. Gray.) Piper. Alpine Monkey-flower.
A dwarf plant with bright yellow flowers. Very abundant about moist rill and lake banks near the main camp. No. 2506.

Veronica alpina, L. Alpine Speedwell.
An inconspicuous plant with small pale blue flowers. Common on moist slopes and rill banks near Chain Lakes. No. 2591.

Castilleja oreopola Greenman. Alpine Painted-cup.
An erect plant, 6 to 12 inches high, with flowers varying from rose-purple to white. In the present instance they were white. Fairly abundant on moist, grassy slopes about the main camp. No. 2510.

Castilleja rupicola Piper. Sarlet Painted-cup.
A smaller plant than the preceding, 4 to 8 inches high, with deep scarlet flowers. Occurs sparingly on dry, rocky slopes above Chain Lakes, also on ridges near the upper camp. No. 2572.

Pedicularis contorta Benth. Lousewort.
Quite rare on dry, grassy slopes, 6600 feet, on Lasiocarpa Ridge. No. 2675.

Pedicularis racemosa Dougl.
Abundant on moist, grassy slopes near the main camp, also collected about Chain Lakes. Nos. 2509 and 2563.

Pedicularis Groenlandica surrecta (Benth.) Piper.
A tall species with reddish or reddish-purple flowers, which bear a miniature resemblance to the head of an elephant. Fairly abundant on moist slopes and marshy ground near the main camp. No. 2529.

PINGUICULACEAE (BOG VIOLET FAMILY.)

Pinguicula vulgaris L. Bog Violet.

A small plant, 2 to 6 inches high, with a rosette of pale green, brittle leaves at the base and bearing a single large blue flower closely resembling a violet; hence the common name. Several works on botany describe this plant as occurring on "wet rocks," but we have not yet so found it. Occurs sparingly on wet, boggy slopes near Chain Lakes. No. 2546.

CAPRIFOLIACEAE (HONEYSUCKLE FAMILY.)

Sambucus callicarpa Greene. Red-berried Elder.

A large shrub, 4 to 7 feet high, with compound leaves, yellowish-white flowers and scarlet fruit. Observed in green fruit in open woods about Chain Lakes and collected in full flower in a moist canyon above Austin Pass, Aug. 4. No. 2638.

Linnaea Americana Forbes. American Twin-flower.

Common in open woods along the Wells Creek trail up to about 3000 feet. Not observed above 3500 feet. No. 2669.

VALERIANACEAE (VALERIAN FAMILY.)

Valeriana Sitchensis Bong. Western Valerian.

A tall plant, 1 to 3½ feet high, with pinnately compound leaves and faintly fragrant white flowers usually tinged with pink. The freshly broken root has a rank odor that is rather disagreeable to the human but much beloved by the feline race. The leaflets and in some cases the stems of the plant in this section were considerably affected by a parasitic fungus. Very abundant on alpine meadows and grassy glades about Chain Lakes. Nos. 2647 and 2648.

CAMPANULACEAE (BLUEBELL FAMILY.)

Campanula rotundifolia L. Harebell, Alpine Bluebell.

Occurs sparingly on dry, rock cliffs near Mazama Dome and above Chain Lakes. No. 2548.

CICHORIACEAE (CHICORY FAMILY.)

Agoseris sp. Mountain Dandelion.

Rather rare on dry rock cliffs at 5500 feet, near Chain Lakes. No. 2577.

Hieracium albiflorum Hook. White-flowered Hawkweed.

A tall, slender-stemmed plant, 1 to 2½ feet high, bearing numerous small heads of white flowers. Common on grassy slopes in brule up to 6000 feet on Slate Mountain. No. 2616.

Hieracium gracile Hook. Alpine Hawkweed.

A small, slender plant, 2 to 9 or 10 inches high, with small yellow flowers surrounded by black, hairy involucres. Not abundant anywhere, but well distributed on open, grassy slopes from 4800 to 6000 feet. No. 2521.

ASTERACEAE (ASTER FAMILY.)

Solidago corymbosa Nutt. Goldenrod.

Rare on grassy slopes 6500 feet on Lasiocarpa Ridge. No. 2607.

Solidago sp.

Comparatively rare on grassy slopes at 6000 feet on Slate Mountain. No. 2623.

Hoorebeckia Lyallii (A. Gray.) Piper.

Rare on dry, sandy slopes 6500 feet on Lasiocarpa Ridge. No. 2678.

Erigeron salsuginosus (Richards.) A. Gray. Alpine Erigeron.

A conspicuous plant, 6 to 20 inches high, usually with solitary heads of 50 to 70 rays, ranging from white to pink or lavender in color. Very abundant on moist. grassy glades and slopes about timberline. No. 2594.

Erigeron sp.

Occurs sparingly on dry, grassy slopes about 6500 feet on Lasiocarpa Ridge. Nos. 2603 and 2677.

Eucephalus Engelmanni (A. Gray.) Greene. Engelmann's Aster.

A tall, branching aster with numerous heads of purplish flowers. Abundant on dry, grassy slopes up to 5800 feet on Slate Mountain. No. 2619.

Aster foliaceus Lindl. Leafy-bracted Aster.

A tall, showy aster with purple or violet rays. On drying, the rays of this plant lose the violet shade to some extent and become reddish-purple, a process exactly the reverse of certain species of *Rubus, Astragallus, Aragallus, Hedysarum,* etc., in which the purple shade increases on drying. Occurs in fair abundance on the borders of woods adjoining grassy glades and meadows about timberline. Not yet fully in flower on the date collected, Aug. 8. No. 2658.

Antennaria media Greene. Alpine Everlasting.

A small plant, 2 to 6 inches high, with a capitate cluster of inconspicuous flowers somewhat resembling the common everlasting. Fairly abundant on dry, grassy slopes at the head of Wells Creek. No. 2600.

Anaphalis Margaritaceae (L.) B. & H. Pearly Everlasting.

The common "Everlasting" was quite abundant on grassy slopes up to 6000 feet on Slate Mountain. No. 2617.

Achillea Millefolium lanulosa (Nutt.) Piper. Alpine Yarrow.

An alpine form of the common yarrow of our old fields and roadsides. Occurs sparingly on dry, grassy slopes at 6500 feet on Lasiocarpa Ridge. No. 2606.

Petasites frigida (L.) Fries. Arctic Sweet Coltsfoot.

An alpine plant, 6 to 15 inches high, with deep green leaves, smooth on the upper surface and silky-tomentose beneath, and bearing numerous heads of white to purplish flowers. Very abundant along moist rill banks and in the wake of melting snow-banks. No. 2524.

Arnica latifolia Bong. Mountain Tobacco.

A subalpine plant, 6 to 18 inches high, with smooth cordate leaves and one to five heads of yellow flowers. As observed here, it appears to be capable of thriving in a very variable habitat, ranging, in fact, from moist to almost arid. Collected on moist slopes near the main camp, No. 2519; on dry rock cliffs above Chain Lakes, No. 2573; and on dry, grassy slopes at 6500 feet on Lasiorcarpa Ridge, No. 2604.

Luina hypoleuca Benth.

A very noticeable alpine plant, 6 to 12 inches high, with entire oval leaves shining green above and white tomentose beneath, and bearing several small heads of whitish flowers. On rock cliffs near the base of Mazama Dome and very abundant on rocky slopes of Slate Mountain. No. 2558.

Senecio triangularis Hook. Squaw-weed.

A tall plant, 1½ to 3 feet high, bearing several small heads of 6 to 12 rayed yellow flowers. Abundant on moist, grassy slopes near the main camp. No. 2512.

Senecio sp.

Rare on dry, rocky slopes at 6500 feet on Lasiocarpa Ridge. No. 2609.

Carduus sp. Thistle.

A low thistle, 10 to 18 inches high, with numerous heads growing in a dense cluster. Collected on dry rock cliffs above Chain Lakes and on dry, grassy slopes at 6500 feet on Lasiocarpa Ridge. Nos. 2578 and 2608.

Food for Mountain Climbers.

JOHN P. SWEENEY, M. D.

Climbing mountains is not a new taste or mania, but is a healthy, primitive and almost universal instinct. In ancient times the tops of mountains were gone to by those who loved to worship their gods, who they believed had their homes there. Later the Ecclesiastics and those who desired retirement from the world's affairs, built castles, monasteries and shrines on them, and the epicure and the diseased bathed in and drank the waters of the hot springs that flowed from their sides. It is true that as the mountains were impassable ordinarily on account of transportation and communication not having been perfected in olden times, those of intellectual minds seldom visited them and were more pleased to abide in the crowded cities, filled with sounds and abominable smells, rather than endanger their lives or purses by making journeys among the mountains. Not so with all, however. Benedict Marti, professor of Greek and Hebrew at Bern, in the year 1558, wrote as follows of the view from his native city:

"These are the mountains which form our pleasure and delight when we gaze at them from the higher parts of our city and admire their mighty peaks and broken crags that threaten to fall at any moment. Here we watch the risings and settings of the sun and seek signs of the weather. In them we find food . . . . Who then would not admire, love and willingly visit, explore and climb places of this sort?"

It took many years before clubs were formed to enjoy together the beauty of the mountains. In England the first club was organized in 1857, since which time the civilized peoples of the earth have tried to outvie one another by collecting and setting in order information as to the mountains and further their scientific and geographical exploration.

What is more beautiful or soul-entrancing than to live in midsummer at the edge of the snows, on the natural lawns beside the lakes of clear, cold water and view the scenery so clearly seen in the purer air of the natural parks of that place, whose velveted coverings are strewn with rare, delicate and beautifully colored flowers? To climb like the mazama, or mountain goat, to the summits of these mountains becomes our wish—to feel the impulse and lack the means, either in strength or proper food, is grieving to those who have not made due preparation. To those who climb there comes a time when they go forth, full of courage, cheering one another on their way and being cheered heartily by those who must for

various reasons remain at the camp, where the snows, wood and waters meet. Those that go high we cheer, watching and waiting anxiously for their return. What if the avalanche should fall? the glacier open wider? the crevasse, hidden by snow, swallow them? the rocks loosen above them? the shifting shale carry them down into an abyss? the storm hinder or endanger them, as we watch with strong glasses during the day their winding journey upwards?

Have we provided them in the best manner? This is our care, and in order to understand whether we have or not, let us go over the list of food they have taken with them. Orders were given the night previous to have the cook prepare lunches for those that were to climb to the summit, and a variety and bulk of food was given, generally such as is used at the lower levels, which often proves too heavy and unfitted for the needs of those who climb. Each of them may have selected a few articles that they have learned to know the value of, and depending on those few, make a quick rush upward and attempt to return in too short a time, often at the expense of health or endangered life.

In reviewing this matter I will attempt to be brief but sufficiently clear to enable a healthy person of not too concentrated tissue to select enough of readily assimilable and palatable food to produce energy for the undertaking. Let us consider the conditions to be met by each individual: Fear, mental exhaustion, physical exhaustion, defective elimination, diminished pressure of air, diminished force of energy, puna or mountain sickness. Of these, fear is seldom seen but occasionally to be contended with, and must be overcome by quiet advice and a stimulant in the shape of food; if not readily overcome the timorous one should not be allowed to proceed and should be escorted back to camp. Fear produces shock and alters the circulation and causes waste of nutrition and may influence others not inclined to it at first.

Mental exhaustion from worry incidental to preparation for the journey or produced indirectly by physical exhaustion can be met in both instances by liquid food of a stimulating nature or by the various preparations of cola, under which name Kola Biscuits are supplied; also by frequent short rests, leaning on the alpenstock, the body slightly inclined forward, with head bowed, rather than lying in a prone position.

Defective elimination of waste products of food or tissue change, due to extreme exertion, cannot be readily met by the conditions of high climbing, so that a person that does not perspire freely under severe exertion or who does not have normal calls of nature to answer, or who is surfeited with food or its principals, should not venture higher than to note his defect and return.

Diminished pressure of air must be met by the method of climbing, going upward just fast enough to keep the heart's beat in unison with the respiratory movement, and by eating small quantities of food if possible, and by taking short rests.

Diminished force of energy, which comes as one ascends higher, can only be met by frequent rests and stimulating food. It is noticeable to the height of 14,000 to 16,000 feet, but not so much afterwards, possibly because of less nerve sensation, more automatic movement, the spinal nerve centers continuing their impulses long after the mental impressions of fatigue are noticeable by the individual.

Prince Luigi Amedeo, who ascended Mt. St. Elias, noticed this. E. A. Fitzgerald, who ascended the Southern Alps in New Zealand and Mt. Aconcagua. Dr. Workman and Fannie Bullock Workman, his wife who ascended to a height of 23,000 feet in the Himalayas, and Douglas W. Freshfield also.

Puna, or mountain sickness, is quite like seasickness as regards the symptoms. The celebrated mountaineer, Whymper, has ascended Chimborazo, 6427 meters (20,498 feet) without suffering from mountain sickness. Dr. Workman ascended as high as 23,400 feet without noticing it. Tolerance for highest altitudes depends on individual idiosyncrasy; some are afflicted by it at certain altitudes and according to their condition, while others are immune from its influence. The ghastly features of those who ascend high would indicate the loss of blood from the head, which would retard mental perception. The loss of oxygen in the air at high altitudes would retard chemical combustion of nutriment. The enfeebled muscular energy would require greater effort, the brain and spinal centers not receiving properly oxygenated blood are incapable of receiving or imparting impressions as well, so that the person that ascends high is on the whole less powerful and energetic. To climb a mountain that has been climbed involves less waste of mental effort, and indirectly less muscular fatigue as well, as a trail is usually left by former climbers or a route has been designated.

I am ready to commit myself to an opinion:

"Training and habit and attention to diet will not do away with mountain sickness, but they will go on reducing its area and its virulence. We have practically driven the enemy up 8,000 feet in the last fifty years." (Douglas W. Freshfield).

Drs. Zuntz and Durig call it anaemia in the abdomen. Like seasickness, there is no known cure for it, but a person should not start to climb in a surfeited condition or who is below his normal habit from any

cause; neither should he be constantly stimulating for fear of it, either by foods or drinking of water. Dr. Cook, who ascended Mt. McKinley, ate very little breakfast and found the nutriment taken the night previous to be of more service to him than that taken just before starting.

"Some of those who live at high altitudes are not immune. Eight out of twenty-two of the natives who lived in the Himalayas at an elevation of 8500 to 9500 feet, and who had therefore a lifelong advantage over us, moreover had lived at our base camp of 14,000 feet for one month on double the rations that they would have used had they been required to furnish their own provisions, became sick at an elevation of 19,600 feet, so that they lay like dogs in the snow, oblivious of all attempts short of actual violence to induce them to move, while the nine Europeans of the party escaped entirely."—(Dr. Workman).

"Physical fatigue is the predisposing cause of mountain sickness; most important factor is diminished pressure of atmosphere. Short halts rested me better than long ones, gradual adaptation to existing conditions as found by myself and others as we ascended, particularly after getting above 16,000 feet. On arriving at the top all were filled with excitement for some minutes, then fell into an apathetic indifference. H. R. H. had to shake us to have us take meteorological observations, etc., but excepting the curious dullness and aversion to food no symptoms of mountain sickness remained except our headaches, which lasted until we descended to about 13,000 feet. We merely suffered from the cold."—(Expedition Prince Luigi Amedeo).

The heart in particular has to labor incessantly to propel the blood throughout the circulation, and is so overworked at times that it intermits its regular beats and occasionally becomes enlarged. It does not remain so in a normal or healthy individual, but the very young or old should avoid extreme heights and rapid work in mountain-climbing. The respiration works as fast as it possibly can at times, owing to the demand that the tissues make for more oxygen to metabolize nutrition supplied to them by the circulation in order that they may create energy.

Loewi reports increased excretion of amino acids during mountain sickness or during exercise at high altitudes (page 222 Lusk). Amino acids are products of proteid decomposition (page 291 Lusk). Rubners' Experiments as tested by Atwater and Rosa have been confirmed, the amount of energy expended is exactly equal to the amount set free by metabolism in the body (page 42 Lusk). Proteids metabolize with the greatest ease; carbohydrates next and fat least (page 28 Lusk).

Food for higher mountain-climbing should be of such a nature as to be readily used when required and in conformity with the condition of

the individual requiring it; palatable and agreeable to the changes of his economy. What is one man's meat is another's poison, is very true as concerns mountain foods. To reduce to the limit foods for high mountain work, it will be necessary to eliminate water in them as much as possible, taking that in a canteen, or melting snow by means of a spirit lamp with a wind-guard and a proper kettle. When in high altitudes sometimes no lamp will work satisfactorily; that was the case in the expedition of E. A. Fitzgerald to Mt. Aconcagua, and of Miss Annie S. Peck, who attempted to ascend Mt. Huascaran, Peru.

Proper list of foods would contain:

Pemmican. Beef tea. Magi bouillon in capsules. Sweetened chocolate. Malted milk, both in tablets and powder. Coca leaves for making tea or to be chewed while traveling; this is an invaluable stimulant at great altitudes (Annie S. Peck). Pea meal. Toasted corn. Tea in tablets. Sugar. Cereals, as Grape Nuts, etc. Knorr's Pea Sausage is used as the emergency ration of the German soldier. Contents are of sufficient nourishment for use in emergencies. It also requires water, that being its only objection. Blue Ration and Red Ration, as put up by the Bovril Company, London, contain in sealed package the ration per day, either of beef and pea mixture or of chocolate, beef and pea mixtures; may be eaten as it comes from the package or heated with water like Knorr's Pea Sausage. S. W. Silver & Co., London, Eng., supply soups in tins, with a spirit lamp at the bottom; some of them were taken by H. R. H. Prince Luigi Amedeo, who ascended Mt. St. Elias in 1897, and I learn from Major E. S. Ingraham of this city, who was with the expedition, that they worked well and were of great service in high mountain work.

Prunes, raisins and other dried fruits; hard tack, as now supplied to the United States Army in sizes 2″x2″x8″ packages, National Biscuit Company. Galletta, Italian Navy bread, was used by Prince Luigi as the sole bread preparation for his expedition. The American Biscuit Company make this. Zwieback, though bulky, containing no water, also is used.

Dr. Cook, who recently ascended Mt. McKinley, found it necessary to make baking powder biscuit at the lower levels, toasting them often until all the water in them was evaporated, producing real zwieback. At the high altitudes food containing water cannot well be eaten. A substance is used in Oman, Mascat, Arabia, called "pilo"—it is the native food and consists of dried fish, powdered and mixed with dates. Food of the natives of Alaska consists of fish, either dried or fresh, berries, and oil from the seal; the only difference between the tropical food and the food of the colder country is the addition of carbon principles which the oil contains.

I am of the opinion that pilo would be of service and with pemmican and zwieback as food and tea from coca leaves, or tea in tablet as drink, would be sufficient to go anywhere.

A German invention has just come to my notice wherein foods in cans can be taken readily to any place desired, and when ready to be used all that is needed is to light a certain substance at the bottom of the can by the use of a match. That seems to be, as far as I can learn, the proper preparation of food, as it requires no water or the making of a fire to warm it. A food in cans is made in this country which is surrounded by another can, containing between them a certain substance which, when water is added, creates heat which warms the contents of the inner can; the only objection to it is the great bulk and weight and the use of water to start the creation of heat. That is put up by the Aetna Self-Heating Food Company.

That tea is of more use than coffee is proven by those who have used it in the North, in the Alaskan country and cold countries in particular and on high altitudes. Dr. Frederick A. Cook mentions its use in preference to coffee.

Food in bulk or in great volume should never be eaten when a person is fatigued; only small quantities permitted at short intervals. The use of water should be limited. Water in the foods and in the tissues of the individual who has eaten and partaken of sufficient nourishment the night previous being quite sufficient for one day's energetic walking.

Cold food, like meat in cans, should not be eaten except when people are at rest.

REFERENCES.

The U. S. Department of Agriculture, Bulletin 98.
The U. S. Department of Agriculture, Bulletin 99.
The U. S. Department of Agriculture, Bulletin 69. (Parts 1 to 8 incl.).
Year Book of Agriculture.
Farmers' Bulletin.
Mazama Bulletins.
The Geographical Journal from 1896 to 1906.
Mountain Climbing, Out of Door Library Series, Seattle Pub. Lib.
Camps in the Rockies, Bailie Graham, Seattle Pub. Lib.
Cruises in the Cascades, by G. O. Shields, Seattle Pub. Lib.
Mountaineering, G. F. Dent, Seattle Pub. Lib.
Harper's Monthly Magazine, December, 1906.
National Geographic Magazine.
The Journal of the Expedition of Prince Luigi Amedeo, who ascended Mt. St. Elias, Alaska, 1897.
Whymper's Mountaineering Explorations.
E. A. Fitzgerald's Expeditions to the Southern Alps, New Zealand and Mt. Aconcagua, S. A.
Dr. Workman and Fannie Bullock, Expeditions in the Himalayas.
From the writings of Sir Martin Conway, Norman Collie, Douglas W. Freshfield and from Dr. F. A. Cook's lecture, Nov. 9, '06, in Seattle, at his reception on his return from the ascent of Mt. McKinley. From the Journal of Expedition of British troops from India to Lhassa.
From the outings of the Mazamas, 1897-1899-1906.
From the Science of Nutrition by Graham Lusk, M. A. F. R. S. 1906.

The Conquest of Mount McKinley

The story of the ascent of Mt. McKinley, as told by Dr. Frederick Cook to an audience informally gathered together by the Mazamas of Seattle, November 9th, shows in curious fashion how the success of the great venture was achieved by his genius for detail and good generalship almost as much as by heroic persistence in the face of long-continued peril.

Dr. Cook, who six months ago was better known as an Arctic explorer than as a mountaineer, is the first to apply the methods of polar exploration to mountain work, and to this he modestly attributes his success in reaching the summit of Mt. McKinley. The two have much in common, the difficulty of carrying enough food, the exposure to excessive cold and heavy winds, the struggle away from the sight of men, the search for the safest and best route in an untravelled portion of the globe, the encounter with nature in her most savage and pitiless mood.

In 1902 Dr. Cook's attention was first drawn to Mt. McKinley by an article that appeared in the New York Sun over the signature of Cyrus C. Adams. This fired his ambition so that in 1903 he made two attempts to reach the summit, and in 1906 two more. During these four years of preliminary work he was perfecting the details of his campaign against the cruel array of the forces of nature. His inventive genius was busy at work planning a way to meet every possible difficulty and opportunity for defeat. Nothing was left to chance. The first matter to receive his careful attention was the question of food. Pemmican flour was to be his mainstay, as he had already tested its value on Arctic ice fields, and regarded it as the ideal food for such work. This is made of meat ground and mixed with beef tallow, sugar and a small proportion of currants; he found that three-fourths of a pound of this every twenty four hours was sufficient to answer his needs while making the ascent, though in his Arctic work he had required a full pound per day; this difference in quantity he ascribed to the difference in elevation.

Coal oil was carried for fuel above timber-line. The tent used in his ascent was made of silk and weighed but three pounds, yet was large enough to accommodate three men. Swiss ice-axes were ingeniously used in place of a pole.

A new kind of rope was originated for the ascent, an improvement upon the silk rope used by Alpine climbers which has two defects, viz., when wet it gets heavy and lumpy and slips through the hands. Horse-hair was the material selected by Dr. Cook, and it answered his needs admirably, was quite strong enough, did not freeze, and did not slip through the hands.

The sleeping-bag was made from skins of the eider-duck with the down left on; the inner lining was of camel's hair and the outer covering of cravenette, so arranged that they could be separated from the bag and worn as an overcoat.

When after the most careful study this equipment was reduced to a minimum in weight, it was found that each man must carry fifty pounds as his portion, a terrible tax upon their powers of endurance. It is not surprising, therefore, that all except two members of the expedition gave out by the time 12,000 feet elevation was reached. The marvel is that any man had strength enough to continue beyond, even with lightened pack; for necessarily this load had to be gradually reduced during the ascent.

The route from Cook Inlet was by the same old Indian trail followed in 1903 which, with many turnings, brought them to what is known as Simpson's Pass—"the pass that Heron discovered, Brooks lost, and we rediscovered," said Dr. Cook. This was the gateway into the Kuskokwim country, and from there they skirted the Alaskan Range for two hundred miles, the longest, the hardest and the bitterest two hundred miles to travel that the world holds. Keeping just above timber-line they reached the mountain in August.

After two days' careful reconnaissance they decided that the mountain could only be scaled in two ways, either from the northeast or from the southwest. To the northeast there was a long ridge with a gradual slope, but several lesser peaks barred the way. The southwest ridge seemed more promising, but this had been attempted in 1903 only to find upon reaching an altitude of 8300 feet that their way toward the summit was barred by a precipitous descent of 2000 feet to the bed of Peters Glacier. The entire western face of the mountain between these ridges was an almost uninterrupted cliff of pink granite stretching skyward from an elevation of 12,000 feet to about 16,000 feet. The highest point that had been reached in 1903 was 11,400 feet. Thus the ascent of the mountain resolved itself into two problems, first that of finding a route that would take them up to the 12,000 feet line; secondly, the discovery of a way to the summit from this vantage-point.

The first attempted ascent in 1906 failed as had those of 1903, and the party broke up, having come to the conclusion that the most that could be done was to study out what seemed to be the most promising route by which they could ascend the following Summer of 1907. After disbanding it happened that Mr. Barrill, the chief packer of the party, and Dr. Cook were left together.

While making a reconnaissance they discovered that it was possible to negotiate a way around the great cliffs that had barred their way. Encouraged by this they continued their way upward. One height that from another point of view had looked impossible did not end on top in a knife-blade edge, as had hitherto been supposed, but had twenty-five to fifty feet of level space on which they might camp. After long-continued, heroic effort they managed to gain this vantage-point, and here they built a snow hut.

After reaching this strategic point all the bad luck that had previously balked them in their endeavor to scale the great mountain took flight. From this time they were able to map out each day a route that would carry them ever nearer the summit.

The next day after leaving the snow-hut they made 2000 feet. It was intensely cold, and for this reason they found it more comfortable to keep at work climbing so long as their physical powers of endurance permitted it. Moreover, it was so late in the season that the danger from snowstorms was very great. Therefore haste was imperative.

It was September 8th when the real ascent of the mountain had begun, and eight days of mighty effort were required before the summit was attained. When they reached the 14,000-foot elevation they tried to find four level square feet on which to camp for the night. They could not find this, and so went on and on, cutting steps in the ice with their ice-axes and hoping each moment that they would sight some spot where it might be possible for them to rest in safety. Finally darkness overtook them and the bitter winds chilled them to the marrow. It was Hobson's choice; they had no alternative, but were obliged to cut out a step in the ice large enough to seat themselves side by side. Here they remained for the night, unable to sleep for fear of freezing, or of tumbling down the precipitous ice-slope to certain death, yet so exhausted that the only way sleep could be warded off was by friendly kicks every few moments until daylight broke.

When morning at last came they were too numb with the cold to prepare breakfast, their only thought was to find a few feet of level space; so with the dawn they continued their work of cutting steps up the long ice-slope, and at 10 o'clock they were rewarded by sighting a flat sur-

face large enough to enable them to unload themselves, light a fire and have a cup of hot tea, which sent them on their way rejoicing.

All day long they continued to cut steps in the ice, until just as darkness was about to overtake them again they discovered another level expanse generous enough in dimensions to permit them to build a snow-hut. Double rations were served out that night, and they discussed with fresh zeal their prospects of reaching the summit.

But when daylight brought them forth from their snug quarters in the snow they encountered intense cold. Cutting steps in the ice whenever necessary, they mapped out a route toward a ridge between the two peaks. That night they reached an elevation of 18,000 feet and suffered more with the cold than at any time during their two seasons of effort to scale the mountain. The mercury had dropped to 18 below zero and the wind was a hurricane. There was no sleep possible under these conditions, so the two men, with death staring them in the face, listened to the roar of the avalanches which shook the great mountain as by an earthquake.

It was hard work to start the circulation in their benumbed bodies the next morning; it occupied them for a full half-hour, during which time they danced many a lively jig; but victory was now near at hand, and the knowledge of this fired their flagging energies.

Shortly before noon that day—August 16th—they reached the summit, and a glorious prospect unrolled itself before them. The sky had cleared and the eye caught glimpses of the Pacific Ocean and Cook Inlet, 250 miles away. To the north glimmered the Tanana and Yukon Rivers, their course could be traced like silver threads—and to the west the Kuskokwim River. They were the only two men in the world who had ever seen these three rivers at one glance.

There were no rocks on the summit, only eternal snow, so no cairn could be built for the records that were left. The Stars and Stripes had been carried in a box in spite of all the difficulties of the ascent, and this box was placed against a granite cliff near the summit. Dr. Cook's aneroid corroborated the measurements that had been taken below by triangulation; so that the height of Mt. McKinley is now definitely determined to be 20,300 feet, or very near it.

Although eight days had been required for the ascent, only four days passed before they reached the base camp at the foot of the mountain. After a few days rest they started on the journey homeward, and after a perilous struggle with the head waters of the Yentna, reached Cook Inlet in safety.

Russell W. Porter, the topographer of the party, surveyed about 2000 square miles, and the result of his work when published will be of the greatest possible value.

"Mt. McKinley was measured from twelve different places," said Mr. Porter to a representative of the Seattle Post-Intelligencer. "Although the final computations have not been worked out, it will undoubtedly be within 100 feet of the government measurement—20,300 feet.

"We think we have mapped a new mountain of about 15,000 feet; it is not named on the existing maps. This mountain forms a triangle with Mt. Foraker and Mt. McKinley. It has been known by the miners and Indians as Teddy Mack and the Baby. When seen from the south this mountain is projected against the face of Mt. McKinley and is not easily discernible. The country around there is rugged. It is penetrated by box canyons through which flow glacial streams. They are impassable to anything but a small boat. Much time was taken up in trying to penetrate these canyons, and the party finally returned to Tyonek.

"We explored the Sushitna, Takashitna and other streams in that vicinity. The Alaskan range runs northeast and southwest. Huge glaciers are thrown off, some of which extend thirty miles out. The drainage from this side of the range is concentrated in the Skwentna, Kechatna, Yentna, Lake Creek, Kahiltna, Tokcoshitna, Chulitna and Sushitna Rivers.

"The largest glacier is the most northeasterly one on the southeastern side of the range. The glaciers are for the most part from two and three to five miles wide. We could not determine whether or not these glaciers are advancing or receding. That they are moving was determined, but that was all. Some of them run from ten to fifteen miles on almost level ground.

"We mapped a lake nine miles long and two miles wide, which is the source of Lake Creek. This lake lies thirty miles to the southwest of Mt. McKinley and has no name.

"The Yentna and tributaries, after emerging from the mountains, flow through an immense, low, flat area of swamps and thick timber, spruce and pine, which is difficult to penetrate.

"We determined the height of 300 stations in the mountains. Our plan was the plane table method, strengthened by astronomical observations taken from time to time. The horizontal control was by triangulation. Base lines were measured at frequent intervals and errors will not exceed 100 feet.

"One of the greatest difficulties in mapping in that country is the rain. Out of the four months, from June to September, there was scarcely

a week of clear weather, and from the last of August until the middle of September there was a steady downpour. This is evidently caused by the warm air currents of the south striking the cold air around McKinley. The result is a constant precipitation. When we left winter had set in.

"We met many miners during the season, and from what we could learn the gold output of the district was fair. I do not think, however, it will be a second Klondike or Nome.

"Mt. McKinley itself is a wonderful looking old mountain, and its rugged sides are covered with ice and snow, except where it is too steep for even the ice to cling.

"We did much hunting throughout the Summer. Big game is plentiful. Our zoological collection was a slight disappointment to the doctor, who expected to have it more complete than it is.

"The present maps of the country are entirely wrong and are misleading. For this reason we are to get miners' maps out this winter."

The Mountaineers

EDGAR L. HAMPTON,
Chairman Publication Committee, The Mountaineers.

On November 8th, 1906, a committee consisting of Dr. E. Weldon Young, Dr. Cora Smith Eaton and Mr. Asahel Curtis called together a score of mountain lovers at the residence of Dr. E. F. Stevens, in Seattle, to consider ways and means for the entertainment of Dr. Frederick A. Cook, who was at that time about to arrive in the city fresh from his successful achievement of Mt. McKinley. Out of this initial movement has grown the Mountaineers, an organization which enrolled 110 enthusiastic members before its charter list closed, and whose membership is now increasing, of its own volition, at the rate of several new members a day.

The object of the Mountaineers, as expressed in the articles of its constitution, is "to explore the mountains, forests and water courses of the Pacific Northwest and to gather into permanent form the history and tradition of this region, to preserve, by protective legislation or otherwise, the natural beauty of the Northwest Coast of America; to make frequent or periodical expeditions into these regions in fulfillment of the above purposes. Finally, and above all, to encourage and promote the spirit of good fellowship and comradery among the lovers of out-of-door life in the West."

An examination of the by-laws of the Mountaineers shows the organization to be in nature most democratic. The qualifications for membership have few restrictions. Anyone above the age of 17 years, who is in sympathy with the purposes of the club, is eligible and may become a member by a unanimous vote of the Board of Directors, after being recommended by two members.

From the first it has been the plan of the Mountaineers to make their advent into the world as a movement auxiliary to the Mazamas. One of the first steps taken by the committee was to communicate with the Mazama officers, looking toward this end. Thus, when the organization was perfected and the constitution and by-laws adopted, the first article therein stated that the name should be "The Mountaineers", and that it should be "auxiliary to the Mazamas".

That the movement from its very inception met with favor is illustrated by the fact that mountain-lovers, mountain-climbers, and a large number of noted scientists and educators of the West immediately sent

in their names for membership. Such well-known mountain-climbers as Dr. E. Weldon Young, Mr. Asahel Curtis, Dr. E. F. Stevens, Dr. J. P. Sweeney, Mr. Will G. Steel and Mr. F. H. Kiser of Portland, W. M. Price, Arthur C. Warner, and such scientists as Prof. Henry Landes, geologist, who is the Club President; Prof. Trevor Kincaid, zoologist; Prof. Theodore C. Frye, botanist; William Leon Dawson and Miss Adelaide Pollock, ornithologists; Prof. Milnor Roberts, Dean of the School of Mines in the University of Washington; Prof. C. Edward Magnusson, electrical engineer, were among the first to avail themselves of the membership cards.

The whole plan and spirit of the Mountaineers seems to be no less to fan the flame of desire for out-of-door life than to gratify that desire by weekly trips and by an annual outing, all of more or less ambitious nature, and in fact to graduate members from the preparatory school of Mountaineers into the university of Mazamas.

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PHOTO BY L. J. HICKS

Ice Cascade on the North side of Mt. Jefferson.

A New Route to the Summit of Jefferson.

A successful ascent of Mt. Jefferson from the north was made early in August of last year (1906) by L. J. Hicks (a member of the Mazama outing committee for 1907) and S. S. Mohler. Leaving Oregon City toward the end of July, they walked to the mountain by way of Wilhoit Springs, Table Rock and Clackamas Hot Springs.

Climbing up into the Hanging Valley on the north side of the mountain, they were suddenly confronted by a scene of impressive beauty. This noble park, its long grassy reaches broken by shining lakelets and picturesque clumps of trees, projects out from the mountain-side at an elevation of about 6,000 feet. Cut off from the base of the mountain on the east and west by battlemented rock-walls between 1200 and 1500 feet in depth, its outlook is imposing; the eye travels over a vast stretch of virgin mountain-wilds, vistas of jagged bastioned cliffs, misty caverns and flashing torrents, breaking into grand down-sweeping curves of primeval forest and the gentler undulations of far-away cloud-crested hills.

On the west the valley narrows down to a ridge that ends abruptly in a great overhanging rock and a sheer drop of 700 feet. Some distance down this rock two mountain torrents dash headlong over a hundred-foot precipice, uniting into one stream at the base of the rock. At this western foot of the Hanging Valley fresh tracks were seen in such numbers that it was surmised there must be at least a thousand deer in these haunts.

As the country on the north side of Mt. Jefferson is practically an unexplored wilderness, this mountain park has lost none of its primeval beauty. Here Mr. Hicks and Mr. Mohler camped, and every day unfolded some fresh enchantment. The Santiam River heads in this canyon. Ten miles north of the mountain at an elevation of 5000 feet they came upon an unnamed lake about six miles long. Towering above it is Olallie Butte, from which a glorious prospect of the surrounding country was enjoyed. From this height about forty other lakes were seen, a very paradise for anglers. There is also fine fishing in Marion and Pamelia lakes, and on the Breitenbush.

The ascent of the mountain from the north proved a very difficult undertaking. It was all steep rock-work. Crossing underneath an unnamed glacier, they were confronted by a high cliff, but by circling around

it and using their hands more than their feet, they easily pulled themselves up to the top. Then came a 15-foot crawl on hands and knees between cliff and trees. Soon after resuming work in the open they found their way apparently blocked by a precipice and rock-slide not more than 30 feet across but of dizzy depth. By climbing around to the edge they came to the head of the rock-slide and succeeded in pushing and pulling one another up a steep shelving rock above. It was now comparatively easy climbing for two hours with one exception—an eight-foot passage over another perilous rock runway and precipice where the rope was brought into use.

After this they took to the snow for half an hour or more, then back again to the rocks for two hours. Boulder after boulder had to be climbed, it was very much like a giant's stairway. From this rocky level it was a hard climb up and around cliffs. About 500 feet above the level expanse the rocks became peaked, very sharp and steep, overhanging a rock-slide to the head of the glacier. This was the worst place yet, as the crumbling rock, breaking off at a touch, seemed ready to hurl a man to instant death in the abyss below. But Mr. Mohler, who is a very daring and fearless climber, after a little investigation, found a place to the right where by swinging himself around an apparently impassable point he could reach some shelves of rock where the two men could travel with comparative safety. Mr. Hicks believes that by means of the rope a person could be swung around this point without special danger.

Here they struck the side of a rock runway immediately above Lake Pamelia, into whose waters they glanced from a height of at least 6000 feet, more than a perpendicular mile, above it.

Climbing to the ridge again where there was possibly some danger of being struck by an avalanche of rocks from above, they followed it to another cliff which it took them a few minutes to circle, looking straight down to a rock-slide several hundred feet below them.

It was now noon, and as they had been hard at work for five hours they paused here long enough to eat luncheon, then continued their way over loose rock to the top of the ridge, which is the summit of the mountain except for the sharp pinnacle that crowns it. Crawling over the top of the ridge several hundred feet they reached the base of the pinnacle.

This rock-spire, which rises about 400 feet (according to Mr. Hicks' estimate) above the main body of the mountain, can be climbed only on the north and west sides. On this north side it is steep, but offers plenty of foothold and handhold all the way. Its top is barely large enough to accommodate two or three people at one time.

Among the many boulders the two climbers found the small flagstaff that Mr. Mohler had planted there two years before when he made the ascent alone, this being the first opportunity he has had of proving the success of his ascent. This stout green stick was splintered to the base, presumably by lightning.

They remained on the summit only a few minutes, but before leaving they planted securely in the rocks a flagstaff twelve feet long with their names and the date engraved at its base.

By five o'clock camp was reached, the descent proving easy but jarring. As it is almost entirely a rock-climb (from the north) Mr. Hicks discourages the use of spiked boots or an alpenstock, and advocates a soft, yielding tennis-shoe. This was what he used, and he found this footwear sufficiently durable for ten hours of rock-work, but not for a longer time.

On the return to Oregon City Mr. Hicks and Mr. Mohler took the crest-line trail which had been made by one of our club-members, Mr. Adolf Aschoff, formerly supervisor of the forest rangers. This trail, stretching from Mt. Jefferson to Mt. Hood (south side), they found to their great surprise almost as level as a floor for nearly fifty miles at an elevation of 4000-5000 feet, and straight as an arrow. It suggested to them the unrivalled opportunity here presented for a grand boulevard uniting the two mountains. The expense of making the road would be practically nothing, as nature had already leveled and graveled it. The country through which it passes is open, not too heavily timbered, and the prospect presented on every side from this great height is sublime.

After about forty-two miles of easy traveling they reached Clackamas Lake, and from there on to Oregon City the traveling was not so easy. The country was rougher and they had a hard struggle finding a way across the Salmon River which they found a raging torrent.

Toward evening of the day after leaving Clackamas Lake and just after crossing the Salmon, they ran against a black bear. Mr. Hicks gave it chase and it climbed a tree, growling down at Mr. Hicks from a distance of fifty feet above him. He shot it through the head and it dropped dead at his feet.

But just at this moment an awful crash was heard in the brush and the mother of the cub came on to the attack, pounding like an elephant. But the stream that separated them was very deep and turbulent.

"Here's your bear up the tree!" shouted Mr. Mohler. Sure enough, up the same tree was a bear,—three bears in as many minutes, and only two men to deal with them. So Mr. Hicks shot at the treed bear just as it turned its head to look at him from behind the tree. The bear

dropped. Mr. Hicks approached it and saw that it was a three-fourths grown bear, not the other one (a cub) restored to life. As it lay on the ground it was turning its head from side to side, merely stunned by the fall, as it had been shot through the nose. Rising to its full height, it made a lunge for Mr. Mohler, who happened to be on higher ground; the only thing he could do was to give the bear an ugly kick under the chin. This made both go toppling over backward. By this time a dog belonging to the party became an excited and important participator in the fracas. The bear rose with a savage grunt, but was attacked and finally treed by the dog, whereupon it was quickly shot and killed by Mr. Hicks, who thus had two bears by way of trophy for five minutes' work.

They had already killed three deer, had enjoyed fresh fish for dinner every day, had ascended one of our most difficult mountains by a new route, and were in prime physical condition from their two-hundred-mile walk, so that they felt well repaid for their twenty-three days' outing, and Mr. Hicks is ready to go again with the Mazamas this summer when they storm Mt. Jefferson.

The First Ascent of Mount Jefferson

The first climbers who succeeded in scaling the pinnacle that crowns the summit of Mt. Jefferson were Ray L. Farmer and E. C. Cross, both of Salem, Oregon. This ascent was made August 12, 1888. Mr. George J. Pearce accompanied them to the base of the pinnacle. Mr. Farmer in a letter of February 4, 1907, to the editor of this Bulletin, says:

"We had nothing to leave on the summit except a cartridge, which we shoved in the crack of a large rock, and this cartridge I understand was found a few years ago on this rock by Mr. Lem Gates. This last information was given me by Mr. Barnham.

"I have always contended that we had one of the most favorable seasons, and that there are seasons when it would be impossible to make the ascent. To prove this, a party consisting of Mr. Edward Weller, Mr. Harvey Jordan, Mr. Eugene Willis and the writer, were on this same trip the year before, 1887, and that year (1887), in order to reach the camp at the foot of the mountain we walked over acres of snow that was all the way from three to twenty feet deep. The next year, 1888, there was not a bit of snow where the year before there had been so much of it.

"You will note that Mr. Burnett says (Oregon Daily Statesman, Aug. 8, 1897) that we are no doubt entitled to the honor of having made the first ascent of the pinnacle, although not reaching the highest peak. This may be a little misleading, as after having reached the top of the pinnacle it was just as easy to step to the top of one peak as to the other, and we certainly would not let an opportunity like that pass by without taking in all there was to it.

"You will note also that it was nine years after we made the ascent before it was made again, and during that time our statements were, to be plain, rather disbelieved, but now all are willing to admit it."

This first ascent was made by way of the south slope. They estimated the distance from camp at the base of the mountain to the foot of the pinnacle as about three miles, and it required five hours' steady work to reach that point. A bottle was found there containing the names of sundry climbers who had reached the base of the pinnacle without being able to scale it,—John Minto, John Waldo, John Scriber, L. M. Yates (Lem Gates?), Don Smith, George A. Peebles and other names that were illegible.

After a short rest the three climbers crossed the short ridge that leads to the immediate base of the pinnacle. "Mr. Farmer and Mr. Cross skirted the pinnacle (the snow-line being unusually low) along the brink that pitches down to the frightful steep of the great ravine that leads down the southwest side of the mountain, and disappeared from view," said George J. Pearce. "I think it was more than an hour before I knew the whereabouts of my companions, when they shouted, and looking up I saw them leaning over the crags far above me and near the southeast or lower summit of the pinnacle. They warned me not to attempt to come up there, but I had no intention of doing so, and I remained at the base awaiting their return. From the point where they shouted to me there was no difficulty in reaching the summits of the pinnacle and the connecting ridge, and they were in all probability the first to stand on those sublime heights 'in space eternal.'

"After a considerable time I saw them returning, and for a time at one point the descent was extremely dangerous, as I could easily see, and I was very glad when they safely rejoined me after an absence of nearly three hours.

"The fact that most parties have failed to scale the pinnacle is no reflection upon their skill and courage, since it is accessible only under the most favorable conditions. We attributed the success of Messrs. Cross and Farmer to the fact that there was so little snow at the time we were there, and we could easily understand that the conditions of the snow might vary and make it easier, or on the other hand impossible, to make the ascent.

"The rock formation of the mountain is also changing continually. The peak is the storm-center of a large area where many thunder-storms occur, and who can guess what lightnings rend and break the rocks?

"The frosts of winter and the summer sun also exert great influence for disintegration, and the day I waited at the base of the pinnacle there was constant crumbling and shower of small rocks falling down its sides.

"The large rocks that were strewn around and lying loosely in the scoriæ no doubt had fallen from the pinnacle, and we may be certain that it is undergoing constant change and disintegration, so that those who make visits to the mountain one or more years apart will be likely to find radical changes, and can never be sure of conditions permitting the attainment of the highest point.

"I spoke of the summer sun, but in my opinion this is very mild and there is really no summer in these high mountains. There is spring and autumn and then winter, and what a bitter winter it must be!

"There were great banks of snow in the shaded places of Hunt's Cove when we were there, the grass was fresh and green and the flowers we knew in May in the valley were blooming in profusion."

The most reliable account of this ascent will be found in the Oregonian, August 24, 1900, over the signature of Mr. Pearce. Another but less accurate description of it appeared in the Daily Statesman, Salem, August 17, 1888.

List of Climbers Who Have Scaled the Pinnacle of Mount Jefferson.

First ascent, August 12, 1888, by Ray L. Farmer and Ed. C. Cross, of Salem, Oregon, (south side).

Second ascent (south side), July 14, 1897, by Lem Gates, Major Charles E. Roblin, Miss Musa Geer, of Salem; Mr. Pearl Blackerby, Miss Helen Hibbard, of Silverton. Mr. Gates, the guide, a cool and daring climber who knows the south side of the mountain well, anchored a rope at the top of the pinnacle. He also carried the Mazama Box to the summit from "Kirby's Landing," a heap of rocks just south of the base of the pinnacle where it had been left a few years before by Mr. Kirby and his party of Mazamas.

Third ascent (south side), August 5, 1897, by Lem Gates (guide), Major C. E. Roblin (his second ascent), Judge George H. Burnett, J. H. Collins, E. C. Neal. Just as they reached the top of the pinnacle a thunder storm burst upon them and several electric shocks were felt by the members of the party. A very interesting account of this ascent, written by Judge Burnett, of the circuit court, will be found in the Oregon Daily Statesman of Salem, August 8, 1897.

Fourth ascent, September 24, 1901, Mr. Sherman Barnham (reported to the editor of this Bulletin by Mr. Ray Farmer).

Fifth ascent (north side), August, 1903, by Mr. S. S. Mohler, of Oregon City, alone. This was the first ascent from the north.

Sixth ascent (north side), early in August, 1906, by L. J. Hicks and S. S. Mohler.

Mazama Ascent of the Matterhorn, 1906

E. H. Loomis.

There are many centers in Switzerland from which excursions are made into the higher Alps and where guides and outfits may be obtained by those who aspire to reach the summit of snow-capped peaks, but the Mecca of Meccas to both mountaineer and tourist seems to be Zermatt.

This little town lies in a narrow valley, almost a gorge, through which tumbles what the guide-book calls "the turbulent Visp." It is reached by a rack-and-pinion railway whose comfortable coaches were crowded at this season, the latter part of August, 1906, with tourists from nearly all parts of the globe, English perhaps in the majority, followed closely by Americans, a goodly sprinkling of Germans, and more Italians this last year than ever before, owing to the completion of the Simplon tunnel and the consequently shorter and easier route from Italy into this part of Switzerland.

The valley of the Visp is beautiful even as seen from car windows, and grows ever more and more so as the higher peaks come into view, the beautiful Breithorn, the Little Matterhorn, and Monte Rosa, but the dark, towering pinnacle of the Matterhorn, or Mont Cervin as the French and Italians call it, cannot be seen until one leaves the railway and has fairly entered the town.

Zermatt consists of one street. There is scarcely room in the valley for more. This street begins with the railway station at one end, followed by numberless hotels varying from the most modern of European *pensions* to the large and pretentious hotel with "all modern comforts." These are interspersed with little shops filled with all articles that a mountaineer's necessity could demand or his imagination conceive, together with the wood-carvings of Switzerland and "souvenirs" designed with special intent to open tourist purse-strings. These give place gradually to the picturesque little houses and dirty little barns of the Swiss mountain folk, and the street gradually merges into a mountain trail up which all those who climb the Matterhorn from this side must go.

It was up this trail that my small party, consisting only of guide, porter and myself, started about 2 P. M. of the day preceding our climb. The proprietor of the unpretentious, comfortable inn where we stayed proved to be an ex-guide, a handy old Swiss mountaineer, who had made many an ascent of the Matterhorn, but "not now these twenty years."

When consulted about guides, he suggested his son, and said that his services could be secured for the next six days, but at the end of that time he must go to serve his two years in the army.

Guides are plentiful—strong, fearless men—but they universally refuse to take one to the summit of the Matterhorn without the company of a second guide or of a porter. "No, it isn't dangerous," our old ex-guide said slowly, shaking his head, "but—the Matterhorn is the Matterhorn."

The immediate destination of climbers on leaving Zermatt is the *Schwarzsee,* a good-sized, well-conducted hotel which is situated at a height of nearly 6500 feet on a barren, rocky waste commanding a magnificent view of snow-clad peaks, glaciers, and the valley of the Visp.

The walk from Zermatt to the *Schwarzsee* is in some respects similar to that from Longmire Springs to Paradise Valley (Mt. Rainier), but the same contrast occurs as that which impresses one everywhere in Switzerland between the Alps and our own mountains: human habitations on slopes and at altitudes we do not think of finding inhabited in America. We passed through one little hamlet and from all parts of the trail could see, scattered over the mountain-side, the picturesque little Swiss houses.

We reached the *Schwarzsee* about 4:30, had something to eat, and from here the guides carried food for the climb and wood for cooking and warmth at the "Hut," where we were to pass the night. The ascent from the hotel to the Hut is rather stiff climbing and took us two hours and a half.

This little house, which is always spoken of as "the Hut," is at a height of 10,800 feet. It is built of rough stone and consists of three rooms, two below and a loft. One room contains a stove, a few cooking utensils, and beds for the guides; the other, beds for guests, a table and some stools. The bed consists of a broad wooden shelf occupying most of the room, on which are mattresses and blankets. A card on the door states that this cabin has been built and furnished by the Swiss Alpine Club for the use of mountaineers, and is free to all, the Club asking only that it and its contents be left by each in as good condition as found.

The guide prepared supper, after which we went out to look at the wonderful panorama before and about us while there was yet light enough to see. It was certainly a glorious and awe-inspiring sight. In our immediate vicinity were twelve snow-capped peaks, each more than 12,000 feet high, and beyond these in the distance numerous others.

Five other would-be conquerors of the towering black peak behind us were sharing the hospitalities of the stone Hut, and our number was increased later in the evening by the addition of three more, one of them

an English lady. With guides and porters, this made quite a company. They included Germans, Swiss, English, and one Italian, and made up five separate parties.

We retired early, but not to sleep,—unless the others were more successful than myself. At 1:30 in the morning the guides began to make preparations for breakfast and departure, and all parties were ready to start by 2:30.

The same precautions and same order of procedure were followed by each party. Before leaving the Hut each guide tied a rope about his waist, then about the waist of his patron, then about the porter or second guide, leaving about four feet of slack between each. All guides carried lighted lanterns. The steep climb begins immediately on leaving the Hut, and the progress of each party up the great wall of rock could be traced by the twinkling lights.

It was all rock climbing. The Matterhorn stands amid the snowy peaks about it a great, dark, irregular-shaped pinnacle, so steep that but little snow clings to its sides. There is scarce a breathing-place from the Hut to the summit. In some places we worked our way up nearly perpendicular rock walls, with but few inches of resting place for our feet and scarce a hold for our hands. At some of the more difficult places we found heavy ropes anchored firmly to the rocks by iron spikes. These were of great assistance, and it was sometimes necessary to depend entirely upon them.

At about 5 o'clock we reached a small stone cabin, but found it filled with snow. This was built by the Alpine Club in the hope that it might be of assistance to climbers, but it has been found impossible to keep it free from snow, and its use has been abandoned. Here, however, we rested, ate, and the guides left a portion of their packs.

At a place above this, my guide pointed out a little shelf of rock where his father and a party had once been overtaken by a snowstorm and obliged to spend the night, and where one of the party had died during the night.

We reached the summit at 9:15, found the book of the Alpine Club, in which I registered as a Mazama and left a Mazama outing circular in the tin box with the book.

The summit is a long, narrow ledge covered with snow. Its height, according to the generally accepted measurements, is 14,780 feet.

After a half-hour's rest on the summit, we started downward, the porter going ahead and the guide bringing up the rear. The descent is in some respects more difficult than the ascent. In going up every faculty is concentrated and every muscle strained in getting higher, so that the precipices and vast depths below are scarcely realized.

We reached the Hut on our return at 4:15, having gained a greater respect for this "lion of the Alps" than anything except its actual conquest could have given. From the time of leaving this point on the ascent until it is reached again on the descent there is no portion of the climb where vigilance can be for a moment relaxed.

We went on to the *Schwarzsee* Hotel, meeting parties coming up to make the climb next day. We reached the hotel about 6:30 and Zermatt at 8:45. To say I was tired is the faintest possible description of my feelings.

The weather and conditions for climbing could not have been better, and all parties starting from the stone Hut that morning successfully made the summit and return, but it was for me the most difficult ascent I have yet made, and I frankly confess I could not have accomplished it without the assistance of my guide and porter.

The sturdy Swiss mountaineers, born and bred to this life, have remarkable nerve, muscle and endurance. Doubtless the excellence of the guides is due partially to the care exercised by the government in their supervision. In order to follow this calling, a license issued by the state is necessary. Each license is good only for the special locality in which the guide is to serve. The remuneration for the different ascents is fixed by the government. This varies from 20 francs ($4) to 100 francs ($20). A guide for the Matterhorn costs 100 francs and porter 70 francs.

The necessary requirements for a guide's license as given below are condensed from the official publication of the *Conseil d'Etat* of the canton of Valois:

1.—The applicant must be 23 years of age.
2.—Of good reputation.
3.—He must have the physical qualifications necessary to the service.
4.—He must have served an apprenticeship as porter; and
5.—Must pass an examination on questions including—
   a. Topography of the Canton, especially the region of the applicant's home.
   b. The Swiss Alpine Region.
   c. A reasonable knowledge of topographical charts.
   d. Duties of guides and of the regulations governing them.
   e. Elementary ideas of measures to take in case of accident.

Absent From Mazama Camp Fires.

It is with profound sorrow that we chronicle the absence from our camp-fires of a club member whose inspiriting enthusiasm, ardent love of nature and warm output of human sympathy has given him a firm abiding-place in the hearts of all loyal Mazamas. In the sudden passing away of Col. L. L. Hawkins, on March 11, 1906, the Mazamas have lost a stimulating and genial friend. We who were his comrades on many a mountain-side recall with sorrowing pride his countless acts of gracious courtesy, generosity and goodwill. He had no enemies for the simple reason that his kindness of heart did not permit him to harbor a sense of wrong to any man.

And how inspiring we found his marvellous fund of knowledge and enthusiasm for all the works of creation, into what an entrancing fairy-land of scientific fact and fantasy his talks beguiled us. Who else had such genius for accurate observation of all the minutiæ of woodland life?

His philosophic good humor was proof against all assaults. The grumbler has never been found whose groans at the discomforts of camp-life did not take flight before his genial face and naive logic. His talent as a financier has many a time helped the Mazamas out of difficulties. From the Mt. Adams outing in 1902 we emerged with a full treasury for the first time in the history of the club.

In his early life while indomitably bending all his energies upon obtaining a college training he came under the influence of that world-famed mountain-lover Joseph Le Conte, for whom he formed a life-long friendship. Inspired by his enthusiasm, Colonel Hawkins early became a leader among the students of the University of California in those first outings in the High Sierras, which later gave rise to the Sierra Club of Mountain Climbers, of which club our friend was an esteemed and valued member up to the hour of his death.

His humanitarianism, untiring energy and unflinching honesty of purpose led him into public enterprises of large moment, and at his death he was honored as a public-spirited citizen of rarely pure motive.

It was the breadth and depth of his human sympathies that endeared him to all Mazamas and gives him an enduring place in our esteem.

Note and Comment.

It has been the ardent wish of the Mazamas to have President Roosevelt in the club, and accordingly at their annual meeting last October he was unanimously elected an Honorary Member. A few days later the following letter of acceptance was received:

The White House,
Washington. October 14, 1906.

My dear Mr. Sholes:

I thank you and the Mazamas cordially and much appreciate the election to honorary membership in the Club, which I gladly accept.

Sincerely yours,
Theodore Roosevelt.

Mr. C. H. Sholes,
President of the Mazamas,
Portland, Oregon.

C. E. Rusk, of Chelan, Wash., last summer made the ascent of Glacier Peak, the fourth highest mountain in Washington. We believe he is the only person who has climbed Washington's four highest peaks—Rainier, Adams, Baker and Glacier Peak. We hope to receive from Mr. Rusk a full and detailed account of his recent mountain work.

Among the bright features of Mazama camp-life on Mt. Baker was the presence of Mr. and Mrs. Herbert W. Gleason, ardent nature-lovers and well-known *litterateurs* of Boston, Mass., who are in the habit of making an annual pilgrimage to the Pacific Coast, attracted by the grandeur of our mountain scenery and the fascinating study of the alpine and sub-alpine flora and bird-life found near the snow-line. These they have given to the world in masterpieces of photographic art and water-color studies of exquisite beauty, illustrations to Mr. Gleason's lectures upon the picturesque mountain fastnesses which they visit. At present they are busy over the superb *edition de luxe* of Thoreau's Journal being issued in twenty volumes by Houghton, Mifflin & Co., Mr. Gleason having given several years' study with camera to the scenes made famous by the Concord seer. And it is interesting to note that notwithstanding that the price of this sumptuous work runs up into four figures, the publishers have already, for the first time in the history of the firm, sold all the numbers by subscription before they are out of the press.

We are glad to welcome Mr. Gleason into our club; also Mr. Theodore Scudder (son of the well-known art critic of Houghton, Mifflin & Co.), who accompanied Mr. and Mrs. Gleason on the Mt. Baker outing, rendering such valuable aid in fighting the forest fire that threatened to sweep away our camp last August.

The Departments of Geography and Photography of the Brooklyn Institute of Arts and Sciences have engaged Mr. Gleason (as is their annual custom) to deliver a series of lectures on his western nature-study. This year the series will be devoted to our great snow-peaks, and includes "The Canadian Rockies" (March 23), "The Selkirks" (March 30), and "Volcanic Peaks of the Cascades" (April 6). The last of these deals with the Mazama outings to Mt. Rainier and Mt. Baker, 1905-6.

The Mazamas are greatly indebted to Mr. Gleason for the superb panorama of the Mt. Baker region which appears in this issue.

"We are busy planning our next summer's outing," writes Mr. Gleason. "Mexico, Grand Canyon, Petrified Forest, Yosemite and California, seem to be the program, with a round-up at Portland later probably. We shall start in May very likely. I am not sure whether we can join the Mazamas on their trip to Mt. Jefferson or not. It will depend somewhat on the dates you decide upon. Mr. Harnden is thinking of going with us. We have designs on Mt. Orizaba, Mt. Popocatapetl, etc." The Mazamas hope most earnestly that both Mr. and Mrs. Gleason will be able to arrange their plans so as to join us at camp-fire on Mt. Jefferson.

Attention is particularly called to the following prospectus of *Alpina Americana*, the official publication of the AMERICAN ALPINE CLUB, the first number of which has since been received. It is the most sumptuous magazine exclusively devoted to the mountains that has ever been attempted in this country. It ought to be in the hands of every Mazama, not only for its intrinsic beauty and value, but because generous support will hasten the day when the great snow peaks of the Pacific Northwest will receive equally royal treatment. For the convenience of Oregon and Washington members 100 copies have been sent to the club and can be had at the special price by addressing the Secretary:—

Alpina Americana.

"The AMERICAN ALPINE CLUB is about to begin the publication of a systematic illustrated work presenting monographs of the Alpine Mountains of the Western Hemisphere. The first number will be issued early in 1907, and will be a masterly presentation of the *High Sierras* by PROFESSOR J. N. LECONTE, doubtless the leading authority on this region.

"The work will be a handsomely printed quarto, the trimmed page measuring 10½x13½ inches. The illustrations will form a striking feature; not only will they be numerous, but many of them of the impressive size permitted by so large a page. So far as the conditions of high Alpine photographing permit, the "half-tones" will be of the best workmanship. Professor LeConte's own photographs will furnish the beautiful illustrations of the initial number. It will also contain a lithograph copy of the author's new map of the Sierra Nevada.

"The several numbers of this series will form a volume that no lover of mountains can afford to be without.

"The Alpine Club has only a very limited membership; but it proposes to spend its funds without stint for this undertaking, expecting no adequate financial return. If compelled, however, to rely chiefly upon the income from membership fees, the issues of so expensive a publication will, of necessity, be rare. Should the enterprise receive from the members of American mountain clubs, such as the Appalachian Mountain Club, the Sierra Club, and the Mazamas, and from American geographical societies, the encouragement in the way of subscriptions that it will aspire to deserve, the frequency of issue would be measurably increased.

"The price per number to members of these societies will be 35 cents, and to the general public, 50 cents. You are invited to return to the Treasurer of the Club, Mr. William S. Vaux, Jr., 807 Bailey Building, Philadelphia, the enclosed subscription blank with your signature and address, and the amount of the first subscription in the accompanying coin-card.

"Mr. W. S. Vaux, Jr., 807 Bailey Building, Philadelphia.

Dear Sir: Please include my name in the list of regular subscribers to Alpina Americana.

I send herewith thirty-five cents in payment of the initial number.

(Name).....

(Address).....

(Date) ....., 1907."

A very attractive and valuable volume entitled "Mountain Wild Flowers of America," has just been issued from the press of Ginn & Co., Boston. Mazamas will find this a delightful book to carry with them on their outings, as it pictures and describes the flowers and shrubs we commonly meet on our tramps in the Cascade Mountains, the author, Julia W. Henshaw, of Vancouver, B. C., being a Western woman. It is charmingly written, and is specially designed to meet the needs of the unprofessional nature-lover. The flowers are arranged with regard to color, so that those who are unfamiliar with botany may easily identify them. There is an index of the common English names of the flowers described, as well as an index of their scientific names, so that both the botanist and the layman will find it of value as a field-book.

That loyal and highly esteemed friend of the Mazamas, Roland D. Grant, now of Waterloo, N. H., is doing notable work in making known the wonders of the Cascade Mountains. Dr. Grant holds the unique office of International Consul for the Mazamas, "whose praises I sing nearly every night of my life to some audience," he says in a recent letter to a Portland friend.

Additions to Bibliography of the Cascade Mountains

Prepared by ELEANOR RUTH ROCKWOOD,

Reference Librarian of the Portland Library Association.

CASCADE MOUNTAINS.

Balch, F. H. Bridge of the gods. Chic. 1895.

Clarke, S. A. Bridge of the gods; a legend of the Cascades. (*see his* Pioneer days of Oregon history. 1905. v. 1, p. 138-141).

Coleman, E. T. Mountaineering on the Pacific. (*see* Alpine journal, v. 5, p. 357).

——Mountains and mountaineering. (*see* Alpine journal, v. 8, p. 233, 385).

Dawson, William L. Glacial phenomena in Okanogan county, Washington. (*see* American geologist, Oct., 1898, v. 22, p. 203-217). *Unverified.*

Diller, Joseph Silas. Fulgurite from Mount Thielson, Oregon. (*see* American journal of science, 1884, 3d ser. v. 28, p. 252-258; also for abstract *see* American naturalist, 1885, v. 19, p. 395). *Unverified.*

——Geological field work. Cascade range. (*see* Science, Jan. 11, 1884, v. 3, p. 52-53).

Fairbanks, H. W. Lake Chelan, Washington. (*see* Science, Mar. 14, 1902, n. s. v. 15, p. 412-13). Abstract.

Gorman, Martin W. Historian's report for 1895. (*see* Mazama, 1896, v. 1, p. 49-56). Ascent of Mounts Baker, Rainier, Adams, Hood, Jefferson and Diamond Peak by different parties for heliographing from peak to peak.

Grad, Ch. Note sur les glaciers de l'ouest des Etats-Unis. (*see* Societe Geologique de France. Bulletin, 1871, 2nd ser., v. 28, p. 121-130). *Unverified.*

Greenhow, Robert. Cascade Mountains. (*see his* Geography of Oregon and Washington. 1845, p. 25-26).

Kimball, James P. Bohemia mining district of western Oregon. il. (*see* Engineering and mining journal, June 28, 1902, v. 73, p. 889-890).

Landes, Henry. Deu Pree lode, Washington. (*see* Engineering & mining journal, 1898, v. 65, p. 39-40). Describes the occurrence of gold in the Cascade range of Wash. *Unverified.*

Lyman, Horace S. Creation stories of the Indians. (*see his* History of Oregon, 1902, v. 1, p. 121-160). Contains legend of the Cascades and legend of Mt. Rainier.

Lyman, W. D. Indian myth. (*see* Oregon teachers' monthly. Nov., 1903, p. 4-5). Mounts Hood, St. Helens and Adams.

Miller, Cincinnatus Heine. Oregon Sierra. (*see* Sunset magazine, July, 1905, v. 15, p. 229-230). Poem.

Minto, John. Minto Pass; its history and an Indian tradition. (*see* Oregon historical quarterly. 1903, v. 4, p. 241-250).

Powell, Sherman. Black tail deer of the Mackenzie river country, Oregon. il. (*see* Sunset magazine. July, 1903, v. 11, p. 245-248).

——Hunting elk in Oregon. il. (*see* Sunset magazine. Aug., 1904, v. 13, p. 320-324). On the western slope of the Cascades on the Mackenzie river.

Redway, Jacques W. Great lava flood. (*see* American bureau of geography, Bulletin, 1901, v. 2, p. 157-163). Defines types of volcanic outflows and describes the tertiary lava flows of the Pacific region. *Unverified.*

Rodman, Willoughby. Sierra Club in the Northwest, il. (*see* Out West, May, 1906, v. 24, p. 365-395).

Russell, Israel Cook. Geological reconnaissance in central Washington. Wash., 1893. U. S.—Geological survey. Bulletin 108).

——Geology of Cascade mountains in Washington. (*see* American geologist, 1899, v. 23, p. 96; *also see* Science, 1898, n. s. v. 9, p. 103-104). Abstracts. *Unverified.*

——Preliminary report on the geology and water resources of central Oregon. Wash., 1905. (U. S.—Geological survey. Bulletin 252).

Sholes, C. H. Mountains of the Northwest, il. (*see* Lewis and Clark journal, June, 1904, p. 6-9).

Skinner, C. M. Cascades of the Columbia. (*see his* Myths and legends of our own land, c. 1896, v. 2, p. 248-249).

Smith, Elva J. Dead Indian lake. (*see* Oregon teachers' monthly, Sept., 1904, p. 19-20). Poem on the Cascades.

——Duel of the mountains. (*see* Oregon teachers' monthly, May, 1904, p. 21-22). Poem.

Smith, George Otis. Anticlinal mountain ridges in central Washington. (*see* Journal of geology, 1903, v. 11, p. 166-77). *Unverified.*

——Stratigraphic problems in the northern Cascades. (*see* Science, June 17, 1904, n. s. v. 19, p. 921). Abstract.

——and Mendenhall, W. C. Tertiary granite in the northern Cascades, [Washington]. (*see* Geological society of America, Bulletin, 1900, v. 11, p. 223-230; for abstract of same *see* Science, 1900, n. s. v. 11, p. 144). *Unverified.*

Steel points. Oct., 1906,-Jan., 1907, v. 1, no. 1-2. *Contents,* No. 1, Cascade Range forest reserve; Mount Hood in eruption (1865); Crater Lake, by Joaquin Miller; Eruption of Mt. St. Helens; Ascent of Mt. Baker (1868). No. 2, Crater Lake.

Stovall, Dennis H. Wonderland of Oregon. (*see* Sunset magazine, Sept., 1906, v. 17, p. 294). That part of the Cascade mountains cut by the Rogue river.

Stretch, R. H. Copper ores in the Cascade mountains. (*see* Engineering and mining journal, Nov. 17, 1904, v. 78, p. 789-790).

Thornton, J. Q. Boundaries and mountains of Oregon. (*see his* Oregon and California in 1848. 1864, v. 1, p. 250-261).

U. S.—Geological survey. Mount Stuart folio. Wash., 1904. (Geological atlas, folio 106).

U. S.—Geological survey. Snoqualmie folio. Wash., 1906. (Geologic atlas, arisen. 1891, p. 165-183).

Victor, Mrs. Frances Fuller. Chat about Oregon mountains. (*see her* Atlantis arisen. 1891, p. 165-183).

Wheeler, Olin D. Wonderland; descriptive of that part of the Northwest tributary to the Northern Pacific railway. St. Paul, 1884(?)-1906.

Willis, Bailey. Drift phenomena of Puget Sound and their interpretation. (*see* British Association for the advancement of science report, 1897. 1898, p. 653). *Unverified.*

——Drift phenomena of Puget Sound, Wash. (*see* Geological society of America, Bulletin 1898, v. 9, p. 111-162). For review by W. M. Davis *see* Science, 1898, n. s. v. 7, p. 704-5. *Unverified.*

——Geology of the Cascade mountains. (*see* Johns Hopkins University Circulars, 1896, v. 15, p. 90). Describes the history or the cretaceous period in Washington and the glacial phenomena of the region. *Unverified.*

——Glaciation in the Puget Sound region, Washington. (*see* American geologist, 1897, v. 19, p. 144-145; *also see* Science 1897, n. s. v. 5, p. 238-239). *Unverified.*

——Stratigraphy and structure of the Puget group, Washington. (*see* Geographical society of America, Bulletin 1897, v. 9, p. 2-6). Abstract. *Unverified.*

Wright, G. Frederick. Notes on the glaciation of the Pacific coast. (*see* American naturalist, 1887, v. 21, p. 250-256). *Unverified.*

MOUNT ADAMS.

Reid, Harry Fielding. Glaciers of Mt. Hood and Mt. Adams, il. (*See* Mazama, Dec., 1905, v. 2, p. 195-200).

——Notes on Mounts Hood and Adams and their glaciers. (*see* Geological society of America. Bulletin, 1903, v. 13, p. 536). Abstract. *Unverified.*

——Reconnaissance of Mt. Hood and Mt. Adams. (*see* Science, June 6, 1902, n. s. v. 15, p. 906). Abstract.

MOUNT BAKER.

Greene, I. Newton. Mt. Baker. (*see* Pacific monthly, May, 1905, v. 13, p. 286). Poem.

Prosser, W. T. Climbing Mount Baker. il. (*see* Travel magazine, Oct., 1906, p. ing and mining journal, Mar. 15, 1902, v. 73, p. 379-80).

Smith, George Otis. Mt. Baker mining district, Washington. il. (*see* Engineering and mining journal, Mar. 15, 1902, v. 73, p. 379-80).

LAKE CHELAN AND MOUNT SAHALE.

Anderson, Ada Woodruff. Lake Chelan and the American Alps. il. (*see* Pacific monthly, May, 1904, v. 11, p. 300-308).

Gannett, Henry. Lake Chelan, Washington. (*see* National geographic magazine, 1898, v. 9, p. 417-28). *Unverified.*

——Lake Chelan and its glacier. (*see* Mazama, Dec., 1905, v. 2, p. 185-189).

Gannett, H. Lake Chelan, map and illustrations. (*see* National geographic magazine, 1898, v. 9, p. 417). *Unverified.*

Lakes, Arthur. Lake Chelan district; an account of an undeveloped mining district in the state of Washington. (*see* Mines & minerals. 1900. v. 22, p. 279-80). *Unverified.*

Lyman, W. D. Lake Chelan, the Leman of the West. il. (*see* Overland. Mar., 1899, n. s. v. 33, p. 195-201).

Pattullo, A. S. Lake Chelan and Mt. Sahale. il. (*see* Mazama, July, 1903, v. 2, p. 138-142).

Pierce, Henry H. Report of an expedition from Fort Colville to Puget Sound, Washington Territory, by way of Lake Chelan and Skagit River, during the months of Aug. and Sept., 1882. 1883, 25 pp, 1 map. (Adjutant-General's office). *Unverified.*

Russell, Israel Cook. Great terrace of the Columbia and other topographical features in the neighborhood of Lake Chelan, Washington. (*see* American geologist, 1898, v. 22, p. 362-9). *Unverified.*

Steel, William G. Lake Chelan and the valley of the Stehekin. il. (*see* Oregon native son, 1899, v. 1, p. 407-415).

Willis, Bailey. Notes on Lake Chelan and vicinity. (*see* Science, 1900, n. s. v. 11, p. 884). Abstract. Briefly describes geologic and physiographic features of the region. *Unverified.*

CRATER LAKE AND MOUNT MAZAMA.

Banks, Louis Albert. On the mountain top. (*see his* Oregon boyhood. 1898, p. 114-121). Principally Crater Lake and the Indian traditions regarding it.

Crater Lake, National Park. (*see* U. S.—Interior, Dept. of. Report of secretary, 1902. 1902, p. 142-143, 226-228). Gives account of making Crater Lake a national park and rules and regulations governing it.

Crater Lake National Park. Reports of acting superintendent, 1903 to date. (*see* U. S.—Interior, Dept. of. Reports).

Diller, Joseph Silas. Wreck of Mt. Mazama, Oregon. (*see* Science, Feb. 7, 1902, n. s. v. 15, p. 203-211).

Hodgson, Caspar W. Up Oregon's Rogue river; the most picturesque route to the Crater Lake National Park, il. (*see* Sunset makazine, Jan., 1903, v. 10, p. 198-203).

Skinner, C. M. Crater Lake. (*see his* Myths and legends of our own land. c 1896, v. 2, p. 302-303).

Stovall, Dennis H. Rogue—Oregon's matchless river. il. (*see* Pacific monthly, Mar., 1905, v. 13, p. 166-170).

U. S.—House of Representatives. National park in the state of Oregon, 1902. (U. S. 57th Congress, 1st Session, House report no. 872). Same in Senate report no. 1318 of the same congress.

MOUNT HOOD.

Among the snows of August. il. (*see* Lewis & Clark journal, Aug. 1904, p. 16-18).

Brown, Valentine. Ode to Mount Hood. (*see his* Poems, 1900, p. 82-84).

Bushnell, Grant C. Chief's shadow. (*see* Oregon teachers' monthly, Jan., 1903, p. 22-23).

Drake, F. E. Legend of Mt. Hood. (*see* Oregon native son, 1899, v. 1, p. 73-75). Poem.

Fuller, E. Fay. Historian's report for 1894. (*see* Mazama, 1896, v. 1, p. 15-20). Organization of the Mazamas on Mt. Hood.

——Legend of Mount Hood. (*see* Oregon native son, 1899, v. 1, p. 73-75). Poem.

Miller, Cincinnatus Heine. In the land of clouds. (*see* St. Nicholas, Feb., 1883, v. 10, p. 248-252).

Reid, Harry Fielding. Glaciers of Mt. Hood and Mt. Adams. (*see* Mazama, Dec., 1905, v. 2, p. 195-200).

——Notes on Mounts Hood and Adams and their glaciers. (*see* Geological society of America. Bulletin, 1903, v. 13, p. 536). Abstract. *Unverified.*

——Reconnaissance of Mt. Hood and Mt. Adams. (*see* Science, 1902, n. s. v. 15, p. 906. Abstract.

Saylor, F. H. Strange legend of the double shadow. (*see* Pacific monthly, Oct., 1904, v. 12, p. 220-221).

Tanner, A. H. Trip to Mount Hood. il. (*see* Pacific monthly, Dec., 1899, v. 3, p. 51-58).

Wilbur, Earl Morse. Tramp trip to Mt. Hood; by one of the tramps. [1894]. Pamphlet reprinted from the Pacific Unitarian, Sept., 1894.

Wood, C. E. S. October and Mt. Hood. (*see* Pacific monthly, Nov., 1904, v. 12, p. 276). Poem.

MOUNT JEFFERSON.

Forbidding day on Mt. Jefferson, il. (*see* Mazama, Dec., 1905, v. 2, p. 257-258).

Parrish, R. R. M. Mount Jefferson. (*see his* Echoes from the valley, 1884, p. 41-42). Poem.

Sylvester, A. Outing in Oregon. (*see* Pacific monthly, July, 1902, v. 8, p. 15-20). In the Cascade mountains near Mt. Jefferson.

MOUNT PITT.

Emmons, Arthur B. Notes on Mount Pitt. (*see* California academy of sciences Bulletin, 1886, v. 1, No. 4, p. 229-234).

MOUNT RAINIER.

Bashford, Herbert. Mount Rainier. (*see* Stedman, E. C., ed. American arthology, 1900, p. 736).

Brooks, Wm. A. With Sierrans and Mazamas, July, 1905. Mt. Rainier. (*see* Appalachia, May, 1906, Vol. 11, p. 114-125).

Brown, Harry H. From surf to summit. il. (*see* Overland monthly, Nov., 1905, v. 46, p. 447-455).

Colby, William E. Sierra Club on Mt. Rainier. (*see* Mazama, Dec., 1905, v. 2, p. 212-215).

Coulter, John M., and Rose, J. N. Hesperogenia, a new genus of Umbelliferae from Mount Rainier. (*see* U. S.—Botany, Division of. Contributions from the U. S. national herbarium, 1899, v. 5, p. 203).

Curtis, Asahel. First ascent of Mount Baker on the northeast slope. (*see* Washington magazine, Sept., 1906, v. 2, p. 19-23).

Dorr, J. W. Mountain. (*see his* Babylon, 1897, p. 77-78). Poem.

Fay, Charles E. Through Appalachian eyes. (*see* Mazama, Dec., 1905, v. 2, p. 208-211).

Glascock, Raglan. How we climbed Rainier, il. (*see* Sunset magazine, Nov., 1905, v. 16, p. 49-55).

Iddings, J. P. Note on a rock from Mount Rainier. (*see* U. S.—Geological survey Annual report, 1890-'91, 1891, pt. 1, p, 612).

Landes, Henry. Field notes on Mt. Rainier, il. (*see* Mazama, Dec., 1905, v. 2, p. 220-222).

Lyman, W. D. Rainier Indian legends. (*see* Mazama, Dec., 1905, v. 2, p. 203-207, *also see* Washington magazine, Aug., 1906, v. 1, p. 449-452).

McAlister, E. H. Professor McClure's report [relative to the altitude of Mt. Rainier.] (*see* Mazama, Oct., 1900, v. 2, p. 34-40).

Meeker, Ezra. Who named Tacoma? Address to the Washington historical society at Tacoma, Jan. 22, 1904.

Metcalfe, Gertrude. Rainier climb. il. (*see* Mazama, Dec., 1905, v. 2, p. 224-234).

Monroe, A. S. Climbing Mount Tacoma. il. (*see* World to-day, Oct., 1905, v. 9, p. 1047-1053).

Muir, John. Ascent of Mount Rainier. il. (*see* Pacific monthly, Nov., 1902, v. 8, p. 197-203).

Ortman, Frank O. Climbing Mt. Rainier alone. (*see* Washington magazine, Sept., 1906, Vol. 2, p. 51-54).

Parsons, Edward T. Rainier, il. (*see* Mazama, Oct., 1900, v. 2, p. 25-34).

Piper, C. V. Additions and corrections to the list of Mt. Rainier plants. (*see* Mazama, Dec., 1905, v. 2, p. 270-271).

——Flora of Mount Rainier. (*see* Mazama, Apr., 1901, v. 2, p. 93-117).

Plummer, Fred G. Mount Rainier forest reserve, Washington. (*see* U. S.—Geological survey, Annual report, 1899-1900, 1901, v. 5, p. 81-143).

Pratt, Louis W. Tacoma's attraction for the tourist. (*see* Washington magazine, July, 1906, v. 1, p. 371-378).

Prosch, Thomas W. General McCarver named Tacoma. Address to the Washington historical society. Oct. 4, 1905. Pamphlet bound with Meeker, Ezra. Who named Tacoma?

Randall, Marion. Making of a Sierra Club camp. il. (*see* Out West. My., 1906, v. 24, p. 396-404).

Rice, George S. Mt. Rainier coal fields. (*see* Engineering & mining journal, Apr. 6, 1905, v. 79, p. 660-661).

Sheldon, Caroline. To Mount Rainier. (*see* Washington magazine, Sept., 1906, v. 2, p. 34).

Skinner, C. M. Tamanous of Tacoma. (*see his* Myths and legends of our own land, c. 1896, v. 2, p. 242-245).

Stevens, Hazard. Changes in Mt. Tak-Ho-Ma. (*see* Mazama, Dec., 1905, v. 2, p. 201-202).

Van Denburgh, John. Description of a new species of the genus Plethodon (Plethodon Vandykei) from Mount Rainier, Washington. (*see* California academy of sciences. Proceedings, 3d ser. Zoology, 1906, v. 4, p. 61-63).

Wheeler, Olin D. Climbing Mt. Rainier. 1895 (?). Reproduced in book form from Wonderland. 1895.

Willis, Bailey. Mount Rainier and its glaciers. (*see* Washington philosophical society. Bulletin, 1888, v. 10, p. 10). Abstract. *Unverified.*

ST. HELENS.

Diller, Joseph Silas. Latest volcanic eruption on the Pacific coast. (*see* Science, 1899, n. s. v. 9, p. 639-40). Describe material from Mt. St. Helens, Washington. *Unverified.*

Gile, Katherine. Mount St. Helens. il. (*see* Mazama, July, 1903, v. 2, p. 125-129).

——Lava caves of St. Helens. il. (*see* Mazama, July, 1903, v. 2, p. 134-135).

McAlister, E. H. Report on the altitude of St. Helens. (*see* Mazama, July, 1903, v. 2, p. 123-124).

Parrish, R. R. M. Mount St. Helens. (*see his* Echoes from the valley. 1884, p. 114-115). Poem.

Plummer, Fred G. Diagonal moraine. (*see* American geologist, 1893, v. 12, p. 231-2). Describes a diagonal moraine occurring on Mt. St. Helens, Wash. *Unverified.*

Ross, Emily Lindsley. First white woman on Mt. St. Helens. (*see* Mazama, July, 1903, v. 2, p. 130-133).

Sholes, C. H. Curious tree forms of mountain slopes. (*see* Mazama, July, 1903, v. 2, p. 136).

Thurston, Marion Seymour. Mount St. Helens. (*see* Pacific monthly, Apr., 1905, v. 13, p. 243). Poem.

THREE SISTERS.

Fairbanks, Harold W. Notes on the geology of the Three Sisters, Oregon. (*see* Geological society of America. Bulletin, 1901, v. 12, p. 498-499; *also see* Journal of geology, 1901, v. 9, p. 73). Abstracts. *Unverified.*

Glisan, Rodney L. Ascent of the Three Sisters. (*see* Mazama, Dec., 1905, v. 2, p. 235-241).

Metcalfe, Gertrude. Ascent of the Three Sisters by the Mazamas. il. (*see* Pacific monthly, Nov., 1903, v., 10, p. 255-264).

Miller, Mrs. Lischen M. Valley of mystery. il. (*see* Sunset magazine, Dec., 1903, v. 13, p. 154-160).

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1. Mt. Hood, Oregon, ascended July 19, 1894, by 193 persons.
2. *Mt. Adams, Washington, ascended July 10, 1895, by 41 persons.
3. Crater Lake, Mt. McLoughlin ascended August 16, 1896, by 30 persons.
4. Mt. Rainier, Washington, ascended July 27, 1897, by 57 persons.
5. Mt. St. Helens, Washington, ascended July 21, 1898, by 31 persons.
6. Lake Chelan, Mt. Sahale ascended July 17, 1899, by 30 persons.
7. Mt. Jefferson ascended to base of pinnacle, August 13, 1900, by 37 persons.
8. Mt. Hood, Oregon, ascended July 19, 1901, by 141 persons.
9. Mt. Adams, Washington, ascended July 20 and 21, 1902, by 51 persons.
10. Three Sisters, Middle Sister ascended July 18, 1903, by 6 persons.
11. Mt. Shasta, California, ascended August 1, 1904, by 19 persons.
12. Mt. Rainier, Washington, ascended July 22-26, 1905, by 112 persons.
13. Mt. Baker, Washington, ascended August 6 and 7, 1906, by 8 persons.

*On the same day, July 10, 1895, Mt. Adams, Mt. Rainier, Mt. Hood, Mt. Jefferson, Mt. Baker and Diamond Peak were visited by Mazama parties for the purpose of heliographing from peak to peak, messages being sent to Portland by carrier pigeons.

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Mazama

Volume 4 December 1913 Number 2

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From "The Canoe and Saddle". Courtesy John H. Williams.

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Mount Adams from Sunnyside Canal.

Mazama

Volume 4 DECEMBER, 1913 Number 2

Mt. Adams Outing, 1913.

By Beatrice Young.

The 1913 outing of the Mazamas began on the morning of August 2d, when, amid good-byes and good wishes from friends assembled at the railroad station, some 53 enthusiasts boarded the North Bank train for White Salmon, Washington. Some were hardened climbers, many were recruits from the Mt. Hood outing of 1912, others were neophytes, with the joys of scaling snow peaks yet untasted.

A happy atmosphere of good fellowship and anticipated pleasure reigned throughout the Mazama car, and the three hours on board cemented old-time friendships and fostered new acquaintance.

At White Salmon we descended from the train and boarded waiting automobiles that whizzed us up a big hill to a charming little summer hotel called Jewett's Farm, where odd little houses made of rough stone or logs or just ordinary lumber played hide and seek among a multitude of trees, showing up at the most unexpected spots and facing in the most illogical directions. There were flower beds and fruit trees scattered about with the same absence of precision, and picturesque trails led out to the edge of the cliff above the Columbia, where a magnificent view of the river's gorge met our gaze, with Hood River Valley spread out beyond and Mt. Hood towering a superb climax against the sky.

We lunched on long tables spread beneath the trees, then boarded our autos again for a ride of 27 miles along the winding course of White Salmon River. The day was hot and the road was heavy with dust, which powdered us thickly before we had traveled half an hour; but in spite of these discomforts we could not fail to appreciate the beauty of the valley through which we sped or of the river that hurried beneath us. Every few minutes we caught glimpses of the stream rushing along in its rocky canyon, its mass green as the ocean, swelling into billows of white as it foamed over projecting rocks.

We were deposited at a place without a name, merely a spot beside a dam in the river about a mile from the postoffice and hotel at Guler. To a critical eye this camping spot had little in its favor. The ground was dusty, the trees were too small for shade, the stream was too far away to be useful (at least from the ladies' point of view), and the territory was infested with ants that crawled all over us whenever we sat down.

Cook Weston fed us in masterly fashion, however, and even though we had to eat our dinner standing or perched on stumps, we showed an immense appreciation of his efforts.

We had spent an hour or two before dinner unpacking dunnage and making fir bough beds. Most of us retired fairly early after a small camp fire and a few songs.

Next morning we set out immediately after breakfast to visit some interesting caves. It was our desire to visit these that had caused the temporary camp near Guler.

Five miles over a dusty road brought us to the first of the caverns, a huge underground tunnel probably two miles long, with walls of solidified lava. Following Mr. Anderson, our leader, holding lighted candles aloft, we climbed down a wooden stair, then trailed along a rugged floor, occasionally scrambling over great piles of rock, and next traversing a stretch of level stone as even as an asphalt pavement. Everything was inky black except where lighted by our candles, but after a few minutes in the cave we were able to discern that its form was that of an immense tube some 30 feet in diameter, the floor quite level except where piled with blocks of lava rock that had fallen from the roof, one wall nearly vertical, the other slightly concave, the ceiling gently arched and ornamented with countless tiny stalactites never more than two or three inches long, from which hung glistening drops of water. There were practically no stalagmites.

At length we returned to the warm sunshine of the world above, which seemed very pleasant in comparison with the chilly dampness of the cave, and after a short rest we continued our tramp along the dusty road some three miles farther.

Here we came upon the mouth of the ice cave unexpectedly, although we had been looking for it all along. The country all through this district is comparatively flat, well wooded and thickly grown with brush. The entrances to the caves are simply holes in the ground some 20 or 30 feet in diameter, quite inconspicuous and readily overlooked if a traveler happens to be gazing straight ahead along the road. The ground all along the way responds to stamping with an

odd hollow sound, indicating that there may be many underground chambers which are as yet undiscovered or have no openings at the surface.

The ice cave was wonderfully beautiful, smaller than the lava cave but more irregular in shape, and vastly ornamented by pillars and pendants and pedestals of solid ice, whose shimmering surfaces glistened in our candle light like the sparkle of precious stones. Of course we shivered while we admired, as the temperature among all those icy columns was naturally a trifle lower than is ordinarily requisite for human comfort.

We carried icicles outside to cool the water for our lunch. After a couple of hours' rest we strolled back to camp, following a charming little irrigation ditch that meandered beneath the trees. We were sorry we had not discovered this route on the way up, as it was much more agreeable than the dusty road.

At seven o'clock Monday morning, having repacked our dunnage and deposited it in a pile ready for the pack horses, we lined up single file, numbered, and started along the 13-mile trail to our permanent camp near the foot of Mt. Adams. The trail was dusty, but it led through a beautiful country, up rolling hills wooded with immense pine trees and across broad meadows carpeted with elk grass and thimble berries. We could see the peak of Adams above us nearly all the way, though it disappeared at intervals as we penetrated a bit of heavy timber or descended into the hollow of a gully.

Shortly before noon we stopped for lunch at Wicky Creek and rested there for an hour before proceeding. Mr. Anderson, our leader for the day, told us that since the remainder of the trail was well defined and impossible to lose we might divide into two parties, allowing those who wished to walk quickly to take the lead and the slower ones to bring up the rear. A good deal of amusement was caused by this division, as it developed when we had all arrived in camp along late in the afternoon that the "fast party" had gone astray and traveled several needless miles, while the "slow party," like the tortoise of the fable, by simply keeping on in the right direction had arrived first by a considerable margin.

If the critical eye had been exercised a bit at the temporary camp surely it found nothing to rest upon at Camp Riley. A more beautiful or convenient spot for our permanent camp could not have been desired. We found tents pitched beneath tall fir trees bordering open glades of elk grass, wash stands erected near tubs of water heating over fires beneath iron gratings, the cooking tent complete in its establishment and the long dining table a regular bower under a

canopy of boughs. Preparations for our comfort had extended even to the cutting of stairways down to the brink of Morrison Creek, the frolicsome little torrent that chattered through the camp. Our outing committee, with Messrs. Benefiel and Yoran at its head, had certainly done its work most excellently.

Nearly everybody stayed in camp the following day, though a small party went exploring up the creek as far as the nearest snow fields and came back triumphant over having had "the very first slide."

On Wednesday came an all-day trip to White Salmon Glacier, led by Mr. Yoran. We went up all the morning, then down a short distance, and lunched beside a stream in an immense hollow that Dr. Barck said was an extinct crater, pointing out to our uncomprehending eyes the walls of hardened lava that surrounded its elliptical form and rose in jagged ridges above the snow.

After lunch we continued the upward march, battling against a cold wind that swooped down upon us with tremendous force, until at last, breathless and shivering, we reached a territory of very beautiful seracs and crevasses.

After examining these and admiring the marvelous view that lay beneath us, embracing innumerable valleys and fir-clad slopes, with a line along the horizon that we knew was the Columbia Gorge, and Mt. Hood and Mt. St. Helens towering like sentinels to question our occupation of their sister peak, we started down, sliding or "glissading," as Dr. Barck endeavored so bravely to induce us to call it, most of the way until we reached timber line. Mt. Adams is justly famed for its long snow slopes, which fill all requirements for excellent glissading.

Thursday was spent exploring near camp. There were many beautiful spots very near to be visited. A few trails led off enticingly to nowhere, and a small lake about a mile away offered opportunity to go in swimming. The men, I believe, really did swim, although the ladies, when "ladies' day" at the lake was declared, confined their aquatic indulgences to wading and fishing for tadpoles.

On Friday, Saturday, Sunday and Monday there were summit parties, which reached the goal successfully under most favorable weather conditions. There was practically no wind and an unclouded sky.

Saturday morning part of the youthful contingent of the party set out to walk back to Guler to attend another dance. They induced "Auntie" Dillinger to go with them as official chaperone, and were quite undismayed at the 13-mile walk along the dusty trail, the dance that lasted beyond midnight and the return trip up the trail the next

Mount Adams from Trout Lake, Fourteen Miles Southwest.

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Mount Adams from Mazama Camp, 1913.

Photo by F. P. Leutters.

A Glissade on Mount Adams.

morning. The "Guler Gang" were thenceforth laughed at for their folly but commended for their endurance.

Several of our party were obliged to leave us at this time, the end of the first week of the outing; but our number was not depleted, as others arrived to fill the vacant places.

Mr. Yoran planned a very pleasant program for our entertainment on Monday, the 11th. We were invited to go picnicking. Accordingly we packed up our lunch and set out under Mr. Yoran's guidance for the picnic ground, which proved to be a grassy plateau on the top of a neighboring ridge. Here, besides the lunch, which was of course the piece de resistance, were other delights scheduled for our enjoyment—races and tests of strength or agility. (I might say tests of capacity also, thinking of the pie-eating contest.) I expected every minute to hear Mr. Bronaugh, with his customary reversion to the realm of poetry, begin to quote:

> "Many a pastime circled in the shade,
> The young contending while the old surveyed;
> And many a gambol frolicked o'er the ground,
> And feats of strength and sleights of art went round."

But for once Mr. Bronaugh was too busy for poetry. He had been appointed master of ceremonies and was deeply occupied with his bookings for the various events.

On Wednesday, the 13th, came the official climb of the mountain. Divided into three companies, led respectively by Mr. Coursen, Mr. Anderson and Mr. Benefiel, the party of 35 Mazamas or prospective Mazamas started at four o'clock in the morning to reach the middle summit of Mt. Adams. Weather conditions were decidedly against them, for while perfect days of clear sunshine had been our lot until that time, the weather had suddenly changed, and the climbers were forced to struggle against cold and wind and sleet, which doubled their toil while numbing their muscles, robbing them of the inspiration of a sun-lit peak above and taxing their courage far beyond the sticking point.

Reaching the first summit about noon, an elevation of nearly 12,000 feet, several of the party were unable to go farther, or it was considered unwise to allow them to make the attempt. The Mazama box lay imbedded in the snow of the middle summit some 500 feet higher, but while this seems no great distance to a mountaineer, the cold and wind were so intense that this short ascent, brief enough under favorable conditions, though never easy, was rendered perilous and very difficult. The majority of the climbers, however, attained

their goal in spite of obstacles, and duly inscribed their names in the record book contained in the Mazama box.

It was imposible to glissade coming down, the snow being frozen in hard ridges. The toilsome descent had to be made step by step. The party came into camp weary and bedraggled late in the afternoon, some a little discouraged on account of their seeming failure, but cheerful in spite of all and still imbued with the zeal of the mountaineer. Hot water and blankets and willing hands awaited them and ministered to their comfort, to say nothing of a plentiful supply of steaming oyster soup provided by thoughtful cook Weston.

That evening as we gathered round the camp fire, wrapped in blankets and edging ever closer to the blaze, we felt a real pride in our victorious climbers, who rose one by one as their names were called and received their summit badges. Mr. Bronaugh, as acting president during Mr. Sheldon's absence, presented the small tokens of achievement with a brief but appropriate speech.

Thursday following was a rainy day, gloomy and somewhat disagreeable. Few of us left camp. For the most part we huddled under an awning beside the fire, telling stories, singing, writing letters, making vain attempts to read. Our discomfort was augmented by the fact that the change in the weather had stopped the melting of the glacier from whence came our water supply, and the rushing little torrent that had flowed through our camp had vanished from the face of the earth, leaving but a dry and empty bed to commemorate its erstwhile presence. Water had to be carried from a pool about a third of a mile from camp.

On Friday the sun shone once more, however, and although it was still too cold to refill our stream, the gloom of the day before was quite dispelled. A party of climbers who had turned back at the first summit on Wednesday now tried it again, determined to reach the Mazama box. Several of the men who had already made the goal accompanied them, and it is quite worthy of recording that all attained the highest summit this time and were duly congratulated upon their courage and perseverance.

The ceremony of presenting badges for this achievement was quite unique. Early in the evening it was evident that something out of the ordinary was about to occur. We saw the climbers of the day whispering and giggling with their heads together, and caught glimpses of quick shadows darting among the trees, stooping now and then and flashing gleams of light like fireflies close to the ground. At length when we assembled at the camp fire it transpired that we were to attend a graduation ceremony. The class marched in and took seats

properly arranged in line. Each pupil carried a large bouquet of feathery elk grass blossoms artistically mingled with the smaller yellow-white cats-ears. The fireflies we had speculated about had apparently been seeking blossoms. The class orator arose and delivered an address, stating that all his colleagues had pursued their study of mountain climbing with an assiduity equaled only by that of their able instructors, and that though modesty was their prevailing virtue, they all felt justly entitled to the diplomas that were to reward their patient efforts. Professor Lyman was invited to deliver a baccalaureate discourse, which he did most admirably. The class song was sung with great feeling and the class motto was duly recited. Thereupon Mr. Bronaugh, as dean of the university, presented the diplomas, which were momentous looking documents tied with blue ribbons bearing the words, "Summit, Mt. Adams, 1913," and the ceremony concluded amid vociferous applause.

Many of those not bound for the summit on Friday went with Professor Lyman on a long trip across Mazama Glacier and up to the edge of Klickitat. Starting at about eight o'clock, we reached Mazama Glacier after a couple of hours, then proceeded leisurely to cross it, adding to its distance by a few irresistible glissades and stopping to examine the peculiar ice formations.

For a long stretch the glacier was practically flat, and across its surface ran a thousand little streams, to meet at last and form a good sized rivulet. This cut a trough that deepened gradually until, as we followed its course, we looked down some 15 or 20 feet into the mouth of a tunnel in the ice. The walls and roof shimmered cold blue-green in the sunlight, suspending hundreds of shining icicles, and the roaring, foaming green-white water fell—we could not see how far—inside. A few yards distant yawned the other mouth of the tunnel, still a deep gorge, where the water had cut several sharp turns almost semi-circles, so that there was an immense letter S in the ice, with the water raging through it. Then came the biggest wonder of all—another tunnel ending in a well whose depth we could only guess. We leaned over it cautiously, held firmly from behind, and peered down, at first unable to distinguish the bottom through the cataract that tumbled into its glassy depths so far beneath us that to look at it almost made us dizzy. The sight was grim, though very beautiful.

We lunched beside the well, remaining only a few minutes, as the sun had hidden behind a cloud and we felt too cold to sit still comfortably. Then we traversed the remaining breadth of Mazama Glacier, climbed the dividing moraine and peered over an enormous

precipice down upon Klickitat Glacier, the biggest ice stream on the mountain. The summit was above us at the left, gleaming only now and then through a rift in overhanging clouds; the huge mass of Klickitat lay spread out far below, stretching still farther away to the right, with a wondrous array of seracs and criss-cross crevasses, bewildering in their immensity. Above them rose another distant moraine, while still to the right as we turned on our elevated tower of rock our eyes encountered lower ridges sloping down to wooded valleys, where no less than five little lakes gleamed like turquoises, surrounded by their setting of dark fir trees.

As we stood on this moraine we shouted repeatedly and listened for the echo, at first thinking we had lost it, it seemed so long in coming. Then counting we found that our shouts returned to us after just eight seconds, having traveled to some rocky wall far away that sent them back to us.

On Saturday, the 16th, we realized with regret that our outing was drawing to a close. The days of scrambling among the rocks and glissading on the snow fields, the evenings of song and mirth around the camp fire, the nights beneath the stars had slipped by all too rapidly. We thought gratefully of our musicians, Mr. Newlin with his guitar and Mr. Weichelt with his mandolin, who had contributed so largely to our pleasure; of Mr. Riley's never failing wit and able leadership as an entertainer; of Mr. Bronaugh's more than adequate occupancy of the chair of our absent president; of Dr. Barck's learning, together with his great kindliness and inimitable drollery; of Mr. Gorman's ready sharing of wondrous botanical knowledge; of Miss Monroe's articles published in the Oregonian, giving accounts of our daily happenings; of the excellence of our outing committee; of the fun of our outdoor cafeteria; of the courtesy of our neighbors; of the unforgetable friendships we had formed, and even of the hooted "Guler Gang," who furnished songs and verses without end apropos of every possible occasion.

To give expression to these thankful thoughts and our regret at impending separation there was a gathering at the camp fire Saturday morning, where all these sentiments were uttered in song and speech, evoking ready responses which alternated between fun and odd solemnity. There is always something sad about the end of pleasant things; our joy at what has been is tempered with our regret that it can be no more.

Although camp was not broken until Sunday, most of us tramped down to Guler Saturday afternoon and spent the night at the hotel, incidentally attending the dance in the evening.

Sunday brought us back to White Salmon in the automobiles in time for another bountiful luncheon at Jewett's Farm, where we spent a pleasant afternoon strolling during sunshine and singing under the trees during showers. At 5:30 we boarded our homeward bound train. Some three hours more and we steamed into the Portland depot. The outing of 1913 was a thing of the past, but, laden with countless memories, we knew it would be to all of us a joy forever.

From "Ode to Mount Hood."

By VALENTINE BROWN.

"Proud mountain of the West Land,
Old and hoary in thy glory,
As we look upon thy grandeur
We behold eternity.
Like a Titan thou art standing,
Homage from each one demanding—
Proud mountain of the West Land,
Hail to thee!"

Tne Indian Myths of Mt. Adams.

By W. D. LYMAN.

Around each of our great peaks, as also around each forest, each water-course, each cave, each peculiar physical feature of every sort, the Indian has woven the myths of his vivid and childlike fancy.

It is to be deplored—at least by one with poetic or philosophical or philanthropic sentiments—that the majority of our masterful and self-absorbed race have trodden so ruthlessly upon that vanishing people, who, to the sympathetic observer, have contributed no mean share to the romance and even the permanent enrichment of the history of the Northwest.

White men have seldom been sympathetic or even rational in their treatment of the Indians. Hence we have with stupid and cruel haste thrown away much that might well be preserved as adding to the poetry and psychology of our country.

It is not easy to secure legends from the Indians. Their stories are sacred to them, and they always fear that if the white man can extricate something from the mass of legend he will hold it up for mere curiosity or ridicule. A very tactful and sympathetic person may elicit some story with its grotesque or pathetic elements, but often just as he flatters himself that he is at the point of success the Indian's face will take on the inscrutible look so characteristic, and with perfect silence, or perhaps an uncanny chuckle, he will relapse into a moody reverie—and that is the last of his story.

To the mind of the writer one very worthy aim of the Mazama Club might be the restoration, where feasible, of the native names to our mountains and streams. This is not possible, of course, in most instances. Yet the principle of retention of the name given by the first white man, used by the government, is arbitrary and sometimes "more honored in the breach than the observance." That sacred rule held in such reverence by some sticklers for usage and authority makes no appeal to me. In what possible way could our liberties or morals be endangered by substituting for the inappropriate and commonplace name of Mt. Baker (Baker was third lieutenant of Vancouver's ship and merely happened to be the first officer that saw, or reported the sight, of the snow peak) that splendid Indian name of Kulohan, "Great White Watcher"?

Why might not Oregon, the land of the referendum, whose proudest boast is that her people are not hide-bound to custom and tradi-

tion, recall the names of Portland and Salem, so commonplace, and restore the superb and euphonious Multnomah and Chemeketa? There would be some poetry and history in those names.

But the myths of Mt. Adams. Perhaps the prettiest story in which Adams occurs is that which accounts for the existence of the three peaks, Adams, Hood and St. Helens.

According to this story there was a great "Tomanowas" bridge across the Columbia, and upon that bridge there was a witch woman, Loowit, who kept guard of the fire, the only fire on earth, for men had not yet learned its use.

In pity for the forlorn and destitute Indians, who had no fire, Loowit besought Sahale, the Supreme God, to allow her to impart it to them. This the Deity allowed. Then happiness and prosperity increased beyond measure, and all was joy along the shores of the river. As yet no mountain peaks existed.

Sahale now asked the benevolent Loowit to choose any boon that she might desire. Naturally she chose to be transformed into a beautiful maiden. A wave of Sahale's hand and it was done. All seemed happiness for the Indians and their benefactress. But not for long, for the natural consequences ensued. The Indian chiefs proceeded to fall in love with the new and beautiful Loowit, and to fight because of her. Loowit cared for none of them until Wiyeast from the south and Klickitat from the north came wooing, and then she knew not which of these to choose. The strife between the two suitors became so hot that they led out their warriors to battle. Lodges were destroyed, forests burned, many lives were lost; in short, everything went to the bad.

Sahale repented that he had granted fire to the Indians or allowed Loowit her desire. He broke down the great Tomanowas bridge and cast the fragments into the river. This made the Cascades. Then he killed Loowit and her two lovers; but over each of them he reared a great monument, Wiyeast being Mt. Hood, Klickitat what we call Adams, Loowit our St. Helens. Thus were fashioned the "Guardians of the Columbia."

One story of Mt. Adams which I derived from a friend who received it from an old Indian called Johnson by the whites, pertains to the thunder bird. Nearly all our great peaks have some legend of this singular and enormous bird. I was going to Mt. Adams once, taking my camera, and half way up met some Hood River friends descending. With them was the Indian Johnson. He eyed my camera closely and suspiciously, and, as my friends afterward told me, as soon as we had parted he inquired about it. When they explained

its nature and purpose Johnson declared that it was a very bad Tomanowas, and that he was satisfied there would be a thunder storm that night. They pressed him for an explanation, and after hesitation and with reluctance he finally stated that the thunder bird lived in the cave on the east side of Mt. Adams. He was a bird of monstrous size, and if anything of a profane nature approached the peak he would issue from his hiding place and clap his wings. This was the thunder. The sparkling of his eyes was the lightning.

The peculiar thing in my experience was that when I reached camp that night, near where the rangers' upper cabin now is, there came on a frightful thunder storm. My friends said that they could see it and hear it in the distance, and the look of confirmation and "I-told-you-so" satisfaction on Johnson's face was quite beyond description.

Another thunder legend of Mt. Adams describes Enumtla (from which the little town of Enumclaw doubtless derives its name) as the god of thunder. This was during the times of the Watetash, or animal people. Enumtla kept the inhabitants in continual terror by the flashing of his eyes, which made the lightning, and his dreadful roar, which was the thunder. He dwelt in the clouds over Mt. Adams. Speelyi, the Klickitat coyote god, coming along one day, found all the animal people in terror over the outbursts of the thunder god.

Inquiring the cause of their consternation, and being besought by them to save them, he consulted (after his manner) his two sisters, who lived in his stomach in the form of "oballies" (huckleberries) and was told by them how to overpower the obstreperous god.

He transformed himself into a downy feather and floated down upon a sunflower stalk. Enumtla soon descried the feather from his cloudy throne and swooped down to investigate. Feeling suspicious, he decided to thunder and send down a dash of rain. But the magic feather never stirred. Much puzzled, Enumtla paused, and at that instant the feather rose into the air and belched forth a terrific volley of thunder and lightning, and torrents of rain. The suddenness and fury of his onslaught so dazed the thunder god that he could not get his customary form, and though he rallied and fought so desperately that the earth shook, Speelyi had such an advantage that he soon got a grip upon him and they came crashing to the earth, tearing the very rocks asunder, but with Speelyi on top.

Now the feather had expanded and was of gigantic size. With his huge war club Speelyi pounded the fallen Enumtla into submission and then pronounced sentence thus: "You shall no more kill and terrify the people. You may live, but can thunder only on hot

Photo by Prof. W. D. Lyman, from "The Guardians of the Columbia," by John H. Williams.

Storm on Klickitat Glacier, Mount Adams. Seen from Ridge of Wonders.

Photo by Prof. Harry Fielding Reid, from "The Guardians of the Columbia," by John H. Williams.

Mount Adams, From the Northeast, with Lyman Glaciers in Center, Rusk Glacier on Extreme Left, and Lava Glacier on the Right.

Photo by Prof. Harry Fielding Reid, from "The Guardians of the Columbia," by John H. Williams.

Mount Adams, from Ridge of Wonders, Showing Great "Cirque" of Klickitat Glacier. On the Right is Rusk Glacier, and on Extreme Left is Mazama Glacier.

Adams Glacier, Northwest Side of Mount Adams.

days. You may flash lightning, but not destroy." Since then there are few destructive thunder storms around Mt. Adams, and people are no longer afraid.

In the woods around the great mountain—those enchanted groves with their columned aisles and strawberry glades which we all so enjoyed last summer—there used to be many "cheatcos" and "skookums." These were respectively male and female beings, sort of spooks, of malicious character, whose chief occupation was to catch unwary Indians, especially children.

The story of the skookum and the Lummei (old woman) explains the stripes on the tail of the chipmunk as follows:

A certain Lummei had many children, so many that she could not watch them all, and one day one of the little boys wandered away under the pine trees. He was terrified to see an ugly black creature skulking through the woods. "A skookum!" cried the little fellow, and streaked it away for camp. But after him came the cruel creature, her mouth watering at the prospect of picking the poor little fellow's bones, for the skookums were highly carniverous.

Hearing the screams of the victim, the Lummei came rushing to the rescue, but the bony fingers of the skookum were almost clutching the boy. The mother, unable to save him, sent up a prayer to Sahale, and on the instant the god transformed the boy into a chipmunk. The fingers of the skookum just raked along his tail, and ever since the chipmunks have had the black lines upon their tails.

Afterwards Lummei got rid of the skookum very strangely. Meeting her in the woods, she began to pick up pitchy cones and daub herself with them. The skookum, being very imitative, followed the example and was soon completely gummed over. The Lummei skillfully led the skookum after her, dodging among the trees until, making a sudden turn, she made the pursuer step into the camp fire. Instantly the pitch flashed up in a blaze and the wicked skookum vanished in smoke.

It may be of interest in closing this paper to say that on the return from the Mt. Adams trip last August, while waiting at Trout Lake for the automobile I saw a number of Indians and tried to learn from them the Indian name of the mountain. From most I gained no information, but one quite bright fellow, who said that he was a Wasco, told me that he had heard it called "Kakon," but he thought that to be a general name for any high peak. Another, a Klickitat, said that they called it "Paton." This seems to be the same word that Mr. Himes says in the Mazama of last year is a general word for mountain.

Butterflies at Mt. Adams, August, 1913.

J. H. HUDDLESON, JR., M. D.

Butterfly hunting as an avocation usually provokes a smile. To retire precipitately from the Mazama bread line in pursuit of some passing specimen is quite enough to shatter any one's reputation for sanity with the average hungry mortal. One's dignity is so frequently and so acutely jeopardized. The lepidopterist may be pardoned if he experienced a decided sense of relief on finding that none of our many cameras had caught him in action. The Mazamas had no official entomologist in the field this summer; the writer collected a few butterflies, but did not go prepared to make more than a superficial examination of the Mt. Adams fauna.

The district traversed, from the Columbia River to Mt. Adams, is included in the "Columbian region" of naturalists, which has been defined as embracing "a rather narrow belt along the coast from northern California to Sitka." This "region" is noteworthy for the entomologist in that certain genera of lepidoptera are represented in it by many species having well-limited ranges. Latitude and altitude both have a share in this limitation; indeed, they are always interchangeable to a certain degree in reckoning faunal distribution. For the region in question they are less so than for most other areas; that is, although some Washington butterflies would still be found in California at higher altitudes, most of them would be replaced by different species, latitude being the more important determining factor.

It is well known that northing, and altitude as well, tend to cause decreased size and darkened color, both for interrelated species and for individuals of the same species. This subject, especially the coloration tendency, *melanism,* has not yet been thoroughly worked out for the region. In the first half of August of this year at least neither phenomenon was well marked near the Mazamas' permanent camp at about 5000 feet altitude. It happened that no butterflies were observed above 6000 feet; but this is not the rule, since many species can endure freezing temperature.

One of the most distinctively alpine genera to be found anywhere is *Parnassius.* Though this genus is widely distributed over the world, it has a particularly firm foothold in the Cascades. Outside of the Arctic regions it is rather closely limited to the higher mountain peaks; but here it is not at all rare along the Clackamas River at Estacada,

and one species at least has been observed near Portland almost at sea level. Several species were common around Camp Riley this summer in the altitudes where they are more at home.

Argynnis and *Melitaea* are two other common mountain genera that prefer somewhat lower altitudes, from 5000 to 3000 feet. Many species of each of these related genera have the typically closely limited ranges that one expects in the Columbian region. *Melitaea* is interesting in being chiefly a Western genus as well as a mountain one. Contrary to expectation, it was quite scarce, though several species of *Argynnis* were frequently seen. Any one who explored the ridge east of camp on a clear day will recall the numerous red-brown and yellow-brown butterflies at the top; these were practically all Argynnids.

An unexpected find was a variety of *Coenonympha;* but since the type species of this genus—another one almost peculiar to the Pacific Coast—are confused by authorities, one would hesitate to identify it. At all events, at 5500 feet it was a good thousand feet above its reputed limit in Mt. Adams' latitude.

Two butterflies that would probably be common, but were out of season at the time, are *Vanessa cardui* and *Neophasia menapia. Menapia* is the well known "snowflake butterfly" of the pine and fir forests. It has a fairly wide range both in altitude and latitude. In the same family several species of *Pieris* were noted—mountain equivalents of the lowland "cabbage butterfly." *Vanessa* (or *Pyrameis*) *cardui,* of a different family, is the "brown butterfly" famous for its migratory flights, often observed around Mt. Hood, the Sisters and elsewhere. Other butterflies do present the same phenomenon at times, but this is the typical species.

The subject of butterfly flights is very poorly understood. One authority (Wright) confesses that "what the inducement is or what the gain, nothing is known or even surmised." Another (Scudder) describes many such flights occurring in all parts of the world and in widely separated families of lepidoptera, but offers no positive explanation. It may be a search for food or for water. One remarkable migration on the Pacific Coast was reported in May, 1901, when flights of one species commenced in Lower California and ended in British Columbia, a distance of 1500 miles. This migration was probably by relays, but it was impossible to determine how much of the distance any one flock traversed.

Although nothing spectacular was seen by the Mazamas this summer, any mountain butterflies are sure to be interesting in some way to the collector, whether amateur or professional. Butterfly hunting,

aside from science, is really a sport that should recommend itself to all fresh air enthusiasts. Even medical authorities, experts in hygiene, have specifically accorded it a high place among types of healthful exercise. At the next annual outing the entomologists hope to recruit from our already popular botanical and geological circles.

Impressions.

By Anne Shannon Monroe.

The Mazama outing for 1913 is history. The frolics have subsided; the love-making along winding trails has ended; the dash and dare that carried over half a hundred to the highest peak of Mt. Adams is now turned back into the sane channels of office or home.

What did we get out of it? What was it that paid for crickets and grasshoppers and ants? for the fir bough beds, the icy baths at daybreak, the long hikes to glaciers and the summit, the rain in our faces, the cold of early dawn in the open, the sunburn and blisters of the snow fields, the grease paint and dirt, the abandon to personal ugliness? What was it that we got in exchange for all that we gave up? Merely the glory of attaining the summit? The merriment of the nightly camp fires? The good fellowship? No, it was not that alone.

It is a something that silences one at times, gathering one's gaze from friend or fireside and sending it far off into the dim vistas between forest trees, or to the stars, or to the mountain tops; a something primitive and elemental; something hushed and dimmed, but still deep in the heart of every child of nature, buried, perhaps, by routine and habit, almost lost, but that God put there when He breathed the breath of life into the first man, and that all man's tortuous city-bred ways cannot take away. This is the something that comes back to us in the mountains, the real inner us that steals up through the layers of custom-made thought and action, crushing out small conceptions of life and sitting enthroned, the King, where sat a taskmaster.

A Climb on Mt. Robson.

By H. H. Prouty.

Mt. Robson, "Monarch of the Canadian Rockies," is 13,068 feet high. Its walls are precipitous on all sides. Its summit, almost constantly hid by clouds, is covered with a cap of solid ice, whose cornices are great ice walls and whose ridges are set with immense ice pinnacles fashioned by wind and storm into fantastic and forbidding shapes.

Ambitious climbers have long coveted the chieftain's scalp, but previous to the advent of the Grand Trunk Pacific and Canadian Northern railways it was very inaccessible, being 300 miles west of Edmonton.

Several attempts have been made to climb it, but only two expeditions have been successful. Dr. A. P. Coleman, of Toronto, did much pioneer exploring. "He found it impossible (1907) to climb from the south, where precipitous cliffs rose terrace on terrace." The following year he camped on the northeastern side. "He there made two attempts to climb the mountain, but was driven back by storms and returned after enduring many hardships."

In 1909 Rev. Geo. Kinney, who was with Dr. Coleman, and Donald Phillips reached the summit. "It was only after incurring great risks for seven hours on the storm-swept ice and rocks that they finally descended to a place of safety."

The quotations are from Chas. D. Walcott, secretary of the Smithsonian Institution, Washington.

It is presumed that Dr. Coleman tried to climb on the western side in 1908. Dr. Kinney and Mr. Phillips are said to have gone up over the perilously steep ice and rock slopes of the Avalanche Fan, taking desperate chances. The Avalanche Fan starts near the summit and descends between the northern and western aretes. It widens rapidly as they separate, then narrows gradually farther down as their branches converge. Its entire length is probably 4000 feet.

The last of July, 1913, the Alpine Club of Canada established camp at Robson Pass, northeast of the mountain. Under its auspices Konrad Kain, the celebrated Austrian guide, W. W. Foster, deputy minister of public works, Victoria, B. C., and A. H. McCarthy, of Wilmer, B. C., expert climbers of the A. C. C., successfully climbed the mountain. Leaving camp on the evening of July 30th,

they ascended the Robson Glacier about four miles and passed the night at the Extinguisher, a black rock pinnacle bordering the immense ice stream at this point. Starting at four o'clock next morning, they climbed the glaciers and steep ice slopes on the eastern side of Robson, reaching the summit at 5:30 P. M. It was a most remarkable ice climb, requiring step cutting on the dangerous slopes almost constantly for 13½ hours. Fortunately the weather was clear, and they were granted a view which will be seldom had from this summit. They "flashed" to camp with a small mirror, but could attract nobody's attention. Only a few minutes were spent on the top; then the descent was begun by the southern or southwestern side to an altitude of 9000 feet. Here the party passed the night on a narrow ledge without blankets. Next morning they climbed down the southwestern slope of the mountain and around to Lake Kinney. From here was a good trail to camp.

The next attempt was the one I am asked to describe. It was also made by an A. C. C. expedition. Walter Schauffelberger, the Swiss guide, was leader. B. S. Darling, of Vancouver, B. C., experienced climber of the A. C. C., and the writer, who was in camp as a delegate of the Mazamas, were the other two.

We were to try an ascent on the western arete. With commissary for two or three days, a pair of blankets and a very light waterproof sleeping bag each, we started on the afternoon of August 3d. Camp was made that night on the Grand Fork River a little above Emperor Falls. Next morning the river was waded, and strapping a little wood for camp that night on each of our packs, we climbed the great spur at the northwestern base of the mountain, going from one bench to another by convenient chimneys. The climbing was so good that we could easily make the most difficult places with our packs, which now weighed about 35 pounds each.

At an altitude of about 7500 feet we reached an immense slope of fine talus lying at an angle of 40 or 45 degrees and growing wider toward the south. We traversed this southerly, ascending gradually to an altitude of 8500 feet, and made camp at the foot of a small rocky bluff near the glacier below the Avalanche Fan. Although rainy in the morning, the weather had cleared, affording us splendid views to the south and west. Our wood furnished us a good hot dinner, and we enjoyed it in the warm sunshine.

The night was a comfortable one, although indeed our feathers were not very soft. We had breakfast about four o'clock, and, caching our blankets, sleeping bags and food not needed for the day, we started on about an hour later.

Descending slightly, we crossed the steep glacier, then roped and began at once to climb the steep western arete. Walter was of course in the lead, and Mr. Darling had the rear. Mine was the least responsible position.

It was very steep, hard climbing for 3000 feet or more. Walter soon gave the order, "One at a time now," and from then on two of us were prepared to hold in case the other slipped. This accounts in a manner for our slow progress. Several times we found ourselves at the foot of cliffs 50 or 100 feet high or more, which seemed impossible. Traversing ledges back and forth, and climbing all manner of rocky slopes and chimneys, however, we finally passed them all. There was danger from falling stones. Since nobody had been ahead of us to dislodge the unstable boulders, there were many that needed but a touch to start them rolling. When the man ahead was climbing, the other two of us were obliged to seek shelter or at least to be constantly on the watch. Mr. Darling was hit on the back of his head, but was not seriously hurt.

Once in climbing a steep place requiring full use of both hands, my ice pick slipped from the rope around my waist, but luckily it lodged on a ledge 50 or 60 feet below, whence it was easily recovered. These were the only two accidents of the trip.

From below we had seen "gendarmes," pinnacles, far up the ridge that seemed impassable. Once up there, however, we got around them without much difficulty.

When up about 11,500 feet the arete began to flatten a little. Almost at the same time the ice slopes at the head of the Avalanche Fan were encountered and step cutting began. There were no easy places on this climb where we could make rapid progress.

We were nearing the northern arete, which met ours at or near the summit. On it the ice wall or cornice that overhung the precipice on the northeastern face of the mountain grew larger and more forbidding as we approached. The ice pinnacles were no longer little ones two or three feet high, as they looked from Camp Robson, but were 40 or 50 feet high, of all shapes and leaning in all directions.

These huge pinnacles began to obstruct our route. We had cut around two or three of them when at 6 P. M. it began to storm. The summit looked near, but we were making very slow progress on the steep ice. Asked how long it would take to reach the top, Walter said, "Une heure" (one hour). It seemed to Mr. Darling and me that it would take much longer; that we could not reach there before dark.

Discussing the matter briefly, we insisted on turning back. Wal-

ter apparently had not thought of this and seemed reluctant at first, but finally consented. Since it was only 300 feet or so to the summit (it seemed even less) and it looked like plain sailing ahead, it was a great disappointment to be obliged to turn back; but I for one have not regretted our decision. Even were we able to reach the summit at dark, we knew it was solid ice up there, and we did not know whether there was a flat place big enough for us to stand on, much less find shelter from the storm.

It would have been imposible to retrace our steps over the steep slopes above the Avalanche Fan in the dark and storm. Our present position was bad enough.

It took from 6:15 until 9:15 o'clock to get down to where the aneroid read almost 11,000 feet. Then it was so dark we had to stop. It thundered, lightened, and snowed intermittently, and a hard south wind blew constantly all night. Our ridge was narrow and sloping. On the north was a precipice 1000 feet high, on the south a succession of smaller cliffs.

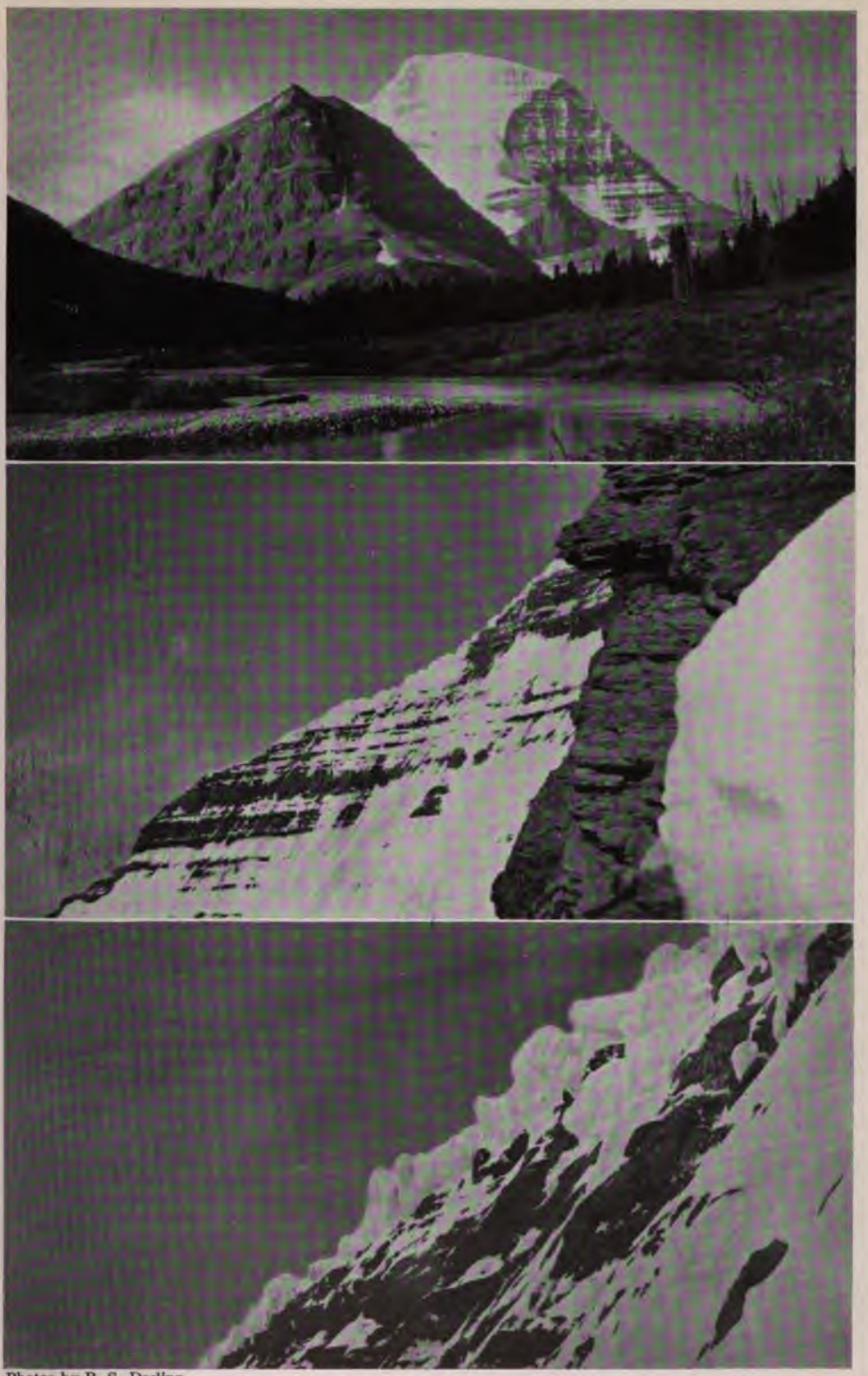
A place wide enough for three was hollowed beside a big boulder, a three-foot wall was built to windward and some flat stones were set on edge against it. This was a great help in keeping out the wind. The stones were wet and cold, and of course we had no cover of any kind, but it was much more comfortable down behind the wall, cuddled close, than up in the wind. Mr. Darling and I each had good sweaters, and all of us had wool helmets and wool mittens. Walter took the inside place next the rock and did not care to change. Mr. Darling and I took turns lying in the middle. When the outside man got too cold we changed. I was so warm and comfortable in the center at one time that I was actually falling asleep. Just then Mr. Darling, unable longer to overcome the impulse, began to shiver, and my dreams were over. It was time for me to take the cold outside. Occasionally we would stand in the wind to thresh our hands or stamp our feet. Once when on my feet there was a sort of sizzling or crackling near the top of my helmet, then a puff of light beside my face, but I felt no sensation. Perhaps Vulcan was simply warning me to lie down and avoid his bolts.

At midnight, to vary the monotony, it was decided to have lunch at half past one. When it seemed an hour and a half had elapsed I struck a match and looked at my watch. It was 12:20! Time was too cold to fly very fast up there. There were plenty of matches, however, and abundance of time to hunt a dry spot on which to light them, and 1:30 came at last. It was lucky we had something left to eat.

Photo by B. S. Darling.

Photo by B. S. Darling.

North Side Mount Robson. Tumbling Glacier, Berg Lake.



Photos by B. S. Darling

Top—Mts. Rearquard and Robson, from Northeast. Middle—Top of Avalanche Fan, from Western Arete. Bottom—Extraordinary Ice Wall on Northern Arete.

Photos, Top, C. H. Mitchell, Toronto; others, B. S. Darling.

Top—Summit of Mount Resplendent. Middle—Left to Right, B. S. Darling H. H. Prouty, Walter, Swiss Guide. Bottom—Camp, at 8500 feet, West Side Mount Robson.

It began to grow light at 3:30, but the clouds were so thick we could not start before five o'clock. Our rope was frozen stiff, our clothes more or less wet from snow which had fallen during the night, and the rocks were covered with ice. It was not a cheerful prospect, and the first few hundred feet of the steep climb was slow work. At length we came to the hardest chimney we had found going up. The approach to it was by a narrow shelf of smooth, sloping rock, slippery with ice. Walter refused to attempt it. We searched for two hours for a way to the bench below, but did not find any.

Finally we saw a streak of white far below us to the south, and as a last resort tried for that. It was reached without much trouble in less than half an hour. It proved to be a very steep couloir, having a chute at the side where snow was avalanching constantly as it fell from the ice slopes above. We were jubilant. There was no step cutting here. The narrow couloir was covered, not with ice, but with snow in good condition.

The next 1000 feet or more was made in comparatively fast time. The aneroid and a familiar stratum of yellow rock indicated when we were low enough on this course, and we then took a shelving bench which led us northerly around three or four projecting points still in the clouds. The clouds lifted for a minute and we could see the location of our camp, a little below and across the glacier, only about a mile away.

After a hot lunch at two o'clock in the cold and stormy weather we left at 2:45 with our packs, now much lighter. We reached Camp Robson about 6:30. Dr. Stone met us first, then others until it seemed the whole camp was out to congratulate us—on our safe retreat.

It is but fair to say that Walter asked to take the lead after leaving the ice on the descent, and Mr. Darling had the difficult position at the rear nearly all the way down.

On August 10th, the day we broke camp, Konrad, Walter, Mr. McCarthy and Mr. Darling left for another attempt. They climbed partly by our route but traversed the western side much farther to the south, past the western arete, and went up from the southwest. This proved a more dangerous route in places because of overhanging ice, but was quicker and easier. They got within 500 feet of the top at 12:30, only to be forced back by a terrific blizzard. Mr. Darling says: "It was absolutely impossible to cut steps up the final ice cap in the face of the blizzard." It was certainly a bad storm that could turn back those four.

They connected with the route of Konrad's first descent, however,

and thus proved the feasibility of climbing from the southwest. Mr. Darling carried a camera and took the first pictures that were taken on the high reaches of the mountain. I am much indebted to him for most of the pictures used in illustrating this article.

Previous to Robson "the Mazama delegate" had not been idle. From July 15th to 25th I had enjoyed splendid climbing and tramping at Cathedral Camp of the A. C. C. on the summit of the Rockies near the Canadian Pacific railway. From here the trail led via Calgary to Edmonton, thence by special train on the Grand Trunk Pacific railway westward through Yellowhead Pass.

The sixteen-mile trail from Mt. Robson station of the Grand Trunk Pacific has many interesting features—beautiful Lake Kinney, lying so close to the western precipices of old Robson that it cannot be seen from the slopes above; the canyon-like valley of a Thousand Falls, where many small streams from the snows and glaciers tumble over the high, irregular walls, forming innumerable cascades and waterfalls; Emperor Falls, an unique cataract of white water, beautiful enough to be worth alone all the effort of the trip. Just before reaching camp Berg Lake is passed, on the northern side of Robson, with the Tumbling Glacier above it.

This is the most remarkable ice stream I have ever seen. Starting in a big snow field or neve almost a vertical mile above, it climbs down the steep mountain-side, clinging to the rough ledges, and buries its snout in the waters of the lake. It frequently discharges great masses of ice, sending waves to the farthest shores and dotting the lake with bergs. Apt indeed are the names Tumbling Glacier and Berg Lake.

The eastern side of Robson has some wondrous features also. A little southeasterly and connected by a narrow col 9700 feet is Mt. Resplendent, 11,173 feet high, and second only to Robson itself. It is "resplendent" with pure white snow. The summit is a great cornice of white projecting to the east. From here clear across the immense basin to the cliffs of Robson, and from the pass between the two summits north to the head of Robson Glacier there are square miles of white expanse unbroken by outcropping earth or rock. It is one of the greatest snow cirques in the Rockies. Resplendent may well be called a "snow climb," for, in descending, from the time we left the summit we were on snow and ice constantly until we stepped off the glacier, less than half a mile from camp.

The great Robson Glacier is sufficiently impressive also. Starting in the immense snow field between Mts. Robson and Resplendent, it extends northerly for five miles, and in places is a mile wide. This

is just about the size of the celebrated Mer de Glace on Mont Blanc.

Mazamas may be interested to know something of A. C. C. camp life.

Arthur O. Wheeler is director and in full charge. He is excellently equipped for his duties by experience, knowledge of the country, physical and mental ability, and force of character. S. H. Mitchell, secretary and treasurer, and his assistant, P. A. W. Wallace, are courteous and painstaking officials. I am sure it would not seem like an A. C. C. camp without Mrs. H. J. Parker, honorary member, official correspondent and much esteemed chaperone. Others too numerous to mention contribute to the success of the A. C. C. camps.

Climbing and tramping expeditions are made up, generaled and started with almost military precision and discipline. Camp fires are much like ours, except that they are adjourned promptly at 10 P. M., and after that there is quiet in camp.

The camp arrangements are much more elaborate than ours because they are much more liable to have bad weather. At Cathedral Camp, where the total number in attendance was 195, the main "fly" used for the dining tent was fully 100x100 feet, with good seats and tables underneath. At one end of this was the cook tent, at the other the administrative offices. There were sleeping tents for all, conveniently arranged. Nobody slept in the open.

Dr. W. E. Stone and Mrs. Stone, both good Mazamas, were in both camps and contributed much to my enjoyment.

Mt. Hood Outing, 1912.

By Beatrice Young.

Our Mazama party bound for Mt. Hood left Portland on the O. R. & N. train Monday morning, July 15th. We were scattered throughout the cars, and although it was evident that there were a good many of us, we had no chance to size up the party and count noses until we reached Hood River some two hours after our departure. Here we descended and found that we were sixty-five in number.

At Hood River we transferred to a funny little wheezing train and proceeded to Parkdale, a village some twenty miles nearer the mountain. The day was hot and the scenery was enticing, but if we opened our windows for an improved quality of view or air our puffing engine showered us with sparks and cinders so malignantly as quite to endanger our eyes and breathing apparatus.

Needless to say, this train possessed no dining car. A committee of Mazamas established themselves and their supplies in the baggage car, however, and presently set forth a repast of sandwiches, pickles and peaches gracefully served on long boards and thoroughly enjoyed.

It was just about noon when we reached Parkdale, and after a very few minutes spent in unloading ourselves of cameras, alpenstocks, coats, etc.—articles which simply must be carried at the start and simply cannot be later on, and which in this case were to be brought to camp in a wagon provided for that purpose—we set out on the hottest, dustiest, tiresomest and most excruciating walk recorded in Mazama annals. Automobiles could have been provided to take us over this eleven miles, but with true hikers' enthusiasm all of us had scorned to ride. And indeed the walk would have been pleasant enough had the weather been cool; but the day chanced to be the hottest of the summer, the dust was six inches thick and the first seven miles of the road had not a sign of shade. Later as we began to wind through the timber, with a solid and slightly moist road beneath us, and the sun relenting as he dipped behind the hills, the comforts of easier travel were fully offset by our extreme weariness and the steep upgrade of every foot of the way.

We trudged limply along in wilted groups of six or eight, stopping every little while to rest, lying flat on our backs beside the road. Other groups passed us, to sink gratefully on a mossy spot a little

farther on and be passed by us in turn when we resumed our way. There was much joking about "dead ones," evoking smiles of constantly decreasing mirth. We were a tired and foot-sore company.

We straggled into camp all the way from 6:30 to 9 o'clock, too tired to observe more than that we were on a hillside in the timber, with patches of snow here and there and a chilly atmosphere that was at once refreshing and provocative of shivers. We found the cook tent alight and warm, sending forth delightful odors. A long table was erected near it, at which we seated ourselves with the greatest dispatch. I think few of us were very hungry, but we drank greedily the strong, hot coffee, which seemed miraculously to revive our drooping spirits. The last hour of the tramp had been at a pretty good altitude, and the night air off the snow banks saw to it that we should feel grateful for something hot to drink.

Tents were already up, and the men industriously cut fir boughs for everybody's beds. We tumbled into these without delay. We were all so tired, however, and had so eagerly embraced the coffee cups that sleep was a long time coming, and we lay gazing at the stars for several hours before losing the pleasant consciousness of cool air, sweet-smelling boughs and luxurious relaxation. We did not sleep in the tents; we made our beds just outside them and used the tents as dressing rooms.

Breakfast was at half past seven the next morning, with all Mazamas on hand and ready for it. We had wakened early and found Camp Sheldon beautifully situated in a grove of fir trees on a hillside, with a tiny stream hurrying along in the bottom of the canyon, bridged here and there by patches of snow and ice. One of these lay directly behind the cook tent and served as an irreproachable refrigerator.

At breakfast we were initiated into the cafeteria style of self-serving that prevailed throughout our stay. The bell was an empty oil can lustily beaten by the cook, and at its foremost tap we came running from all directions to form a line-up seemingly full of impatience but really bubbling over with good nature and friendly gayety. We passed a big box nailed to a tree and picked up enameled plates and cups; another box provided knives, forks and spoons. The cook tent fronted in a long table, across which the eatables were dispensed with the greatest profusion, so much so that half the food was wasted, and we begged to be served more sparingly, as we had not yet developed true mountaineer appetites.

The first day was spent by most of us in arranging our belongings in the tents, improving our beds, resting from our strenuous

walk of the day before and inspecting our immediate surroundings.

Some ten minutes' hard climbing straight up a sandy flower-decked hillside, where our heels sank half a dozen inches at every step, brought us to Cloud Cap Inn, the picturesque summer hotel, by the courtesy of whose proprietor we were allowed to camp on the outskirts of its territory. We were also invited to visit the pretty hostelry as often as we chose. At least part of us were there every day, and we never failed to enjoy the courteous welcome we received and the magnificent view we were permittd.

The elevation at Cloud Cap Inn is, I think, about 5000 feet. The inn is situated on a ridge off the base of Cooper's Spur (the big hump off Mt. Hood that is seen so plainly from Portland) and commands an unobstructed view in every direction. There is a little observatory porch on the roof where excellent long-distance glasses were loaned to us, so that we could fill our eyes and souls with the surpassing beauty of the scenery. The mountain, just at the left, was sublime. It looked so near it seemed you could reach out your hand and break off a piece of its snowy top—this, of course, provided you were a giant and had a good strong grasp. To the right were other snow peaks—Mt. Adams, Mt. St. Helens and Mt. Rainier, with innumerable fir-clad ridges sloping downward into the distance, fading to a soft purple haze of summer cloud, with Lost Lake gleaming like a tiny mirror far away, and bits of snow flashing dusky white in the hollows, conspicuous against the dark purple of the rocks and the misty columns of the distant trees.

Some of our party went this first day on an expedition to Barrett's Spur, the big hump on the other side of the mountain from Cooper's Spur. This was a delightful trip, affording great sport sliding down the snow fields, though the pleasure of the day was marred by an accident that just escaped being very serious. Miss Davis, of the Seattle Mountaineers, who was a welcome member of our party, was struck just below the knee by a falling rock, which crippled her for several days. She was so cheery and uncomplaining during her time of enforced inactivity, however, that I think few of us quite realized what a severe blow she had received.

Each succeeding day brought expeditions to different points of interest—glaciers, falls, spurs, lakes, etc. To go or not to go was a question that each decided for himself, but the cooks can testify that there was a strange peace and quiet and a sense of solitude about camp the central part of every day that was not conspicuous at any other hour of the twenty-four.

Several parties went up the mountain and came back with all

sorts of tales about it, some saying it was as easy as pie, no trick at all, etc., while others declared it was simply awful, the most nerve-trying, frightful experience within the memory of man; which only shows the vast diversity of opinions that is likely to occur even among the best regulated climbers.

Before the first week at Camp Sheldon was over everybody was well acquainted with everybody else, and most of us had nicknames that were telling, to say the least, emphasizing dominant traits of character or perpetuating the memory of thrilling episodes.

Every evening, wrapped in blankets to keep off the biting wind that would swoop down off the glaciers occasionally, we assembled around a huge camp fire, where entertainment was always provided, for the most part of a musical or elocutionary nature, though we had a few noteworthy terpsichorean efforts in the way of a Spanish dance of merit and a very "recherche" Virginia reel. The able leadership of Mr. Frank B. Riley developed a "choir," as he called it, that before many evenings was warbling away like a first class chorus, and whenever the supply of songs seemed likely to flag some brilliant improvization would straightway fill the threatened gap. Funny stories abounded, some discreetly abstract, others poignantly personal. We could see a few heads together for a moment and surmise that some joke was to be sprung, with no respect for sensibilities that might be tender. We seemed to have none of these among us, however, as everybody was unfalteringly good humored, though scarcely able to turn around without hearing a musical account of his achievements. These epic verses usually ended with the emphatic statement that "it's all right now," which was probably a great comfort to the subject under cantation. Mr. Weichelt composed a Mazama "hymn" that was in great favor, and was sung over and over again with a volume of sound only to be surpassed by the exuberant Mazama yell, which was liable to burst forth at any moment.

The official climb took place on Monday, July 22d. Mr. Riddell thought it wise for some of the party to go up to Cooper's Spur Sunday evening and camp there over night in order to get an early start the next morning and be in advance of the rest of the party, thus giving all a chance at the ropes near the summit. Some twenty-four of us assembled, therefore, on Sunday evening ready for the night on the spur, each carrying hardtack and chocolate and a blanket, and dressed in full climbing paraphernalia. The climb to the spur was comparatively easy, the only difficulty arising from the unstable condition of the rocks, which were inclined to roll at every step. The

trail led for some distance across snow fields, but for the most part we plodded, slipping and sliding, up the rocks.

We camped at the uppermost edge of the timber, far above all trees of normal size, under scrubby little pines, whose long, spindling branches reached far out over the ground, all pointing down the slopes, following, no doubt, the downward sweep of the winds. Here and there were huge boulders, and Eliot Glacier was just a bit to the right of us.

The men built a big fire, rolled stones behind our pine cluster to act as additional windbreak and chopped off some of the lowest branches so that we could crawl under these scrubby trees. Then we sat around the fire telling stories and singing until about eleven o'clock, when we rolled up in our blankets and lay down with the best intentions of going to sleep. The wind, however, had something to say about that. It whizzed down off the glaciers with a biting sweep that pierced our blankets as if they were cobwebs, and kept us crowding closer to the fire and each other in a vain attempt to keep warm. Some of us seemed to find comfort in the divine fire of poetry. The multitude of verses and lines and couplets that were recited during that night, besides being an amazing tribute to the lyric muse, were a remarkable demonstration of the retentive powers of the human memory.

At four o'clock it was daylight. The sun came up red and big over a sea of billowing white clouds that enveloped all the lower ridges and valleys like a thick, impenetrable veil. That sunrise was magnificent. It vanquished all the bitter winds that Eliot Glacier had sent to cool our ardor.

Mr. Riddell had a canteen full of water, of which he made coffee. We each had half a cup of the strong, black stuff, steaming hot from the fire, and our hardtack. Then we started upward at a quarter to five to make the ascent of Mt. Hood.

At Tieup Rock we donned life belts and ropes, forming into squads of eight or ten. We also covered our faces thickly with grease paint to avoid sunburn and put on dark goggles to protect our eyes from the glare. Then came nothing but snow and endless upward plodding. The leader of each squad cut little ledges with his ice axe, placing his feet on them carefully as he went. The others followed in his footsteps, alpenstocks firmly planted and hob-nailed shoes dug deep at every step. Frequent rests to recover breath were necessary, and were welcomed also because they gave us time to look down over the magnificent blanket of clouds, rent here and there by a rocky peak jutting up more boldly than the rest. Some of us grew

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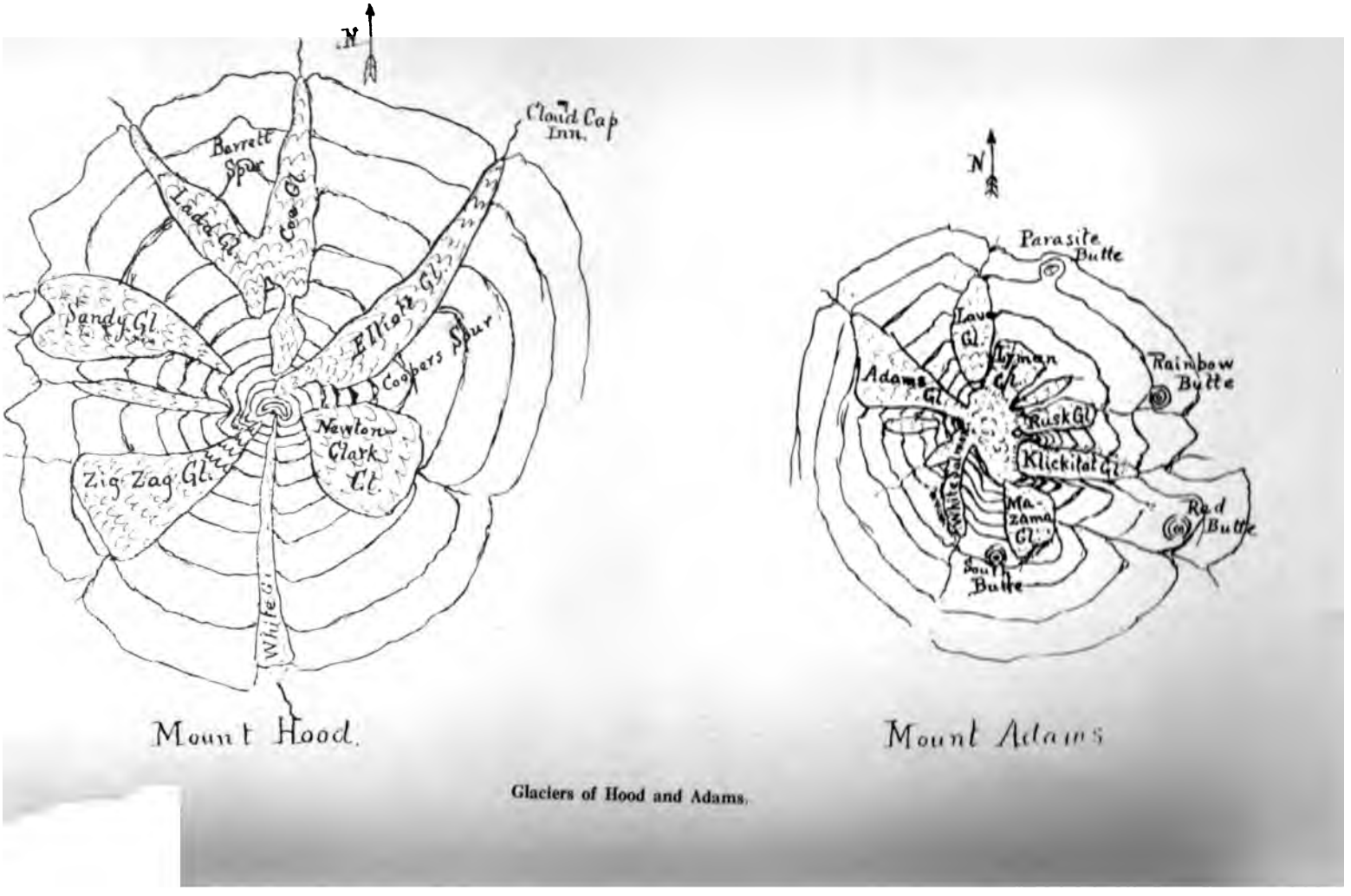
North Side of Mount Hood from Timber Line. Mazamas Starting for Summit, at 5:00 a. m., July 22, 1912.



Glaciers of Hood and Adams.

Photo by L. J. Hicks, from "The Guardians of the Columbia," by John H. Williams.

Crater of Mount Hood from South Side. Steel's Cliff on Right, Illumination Rock on Left, with Crater Rock Rising in the Center. On the Right is the White River Glacier; on Left, Zigzag Glacier.

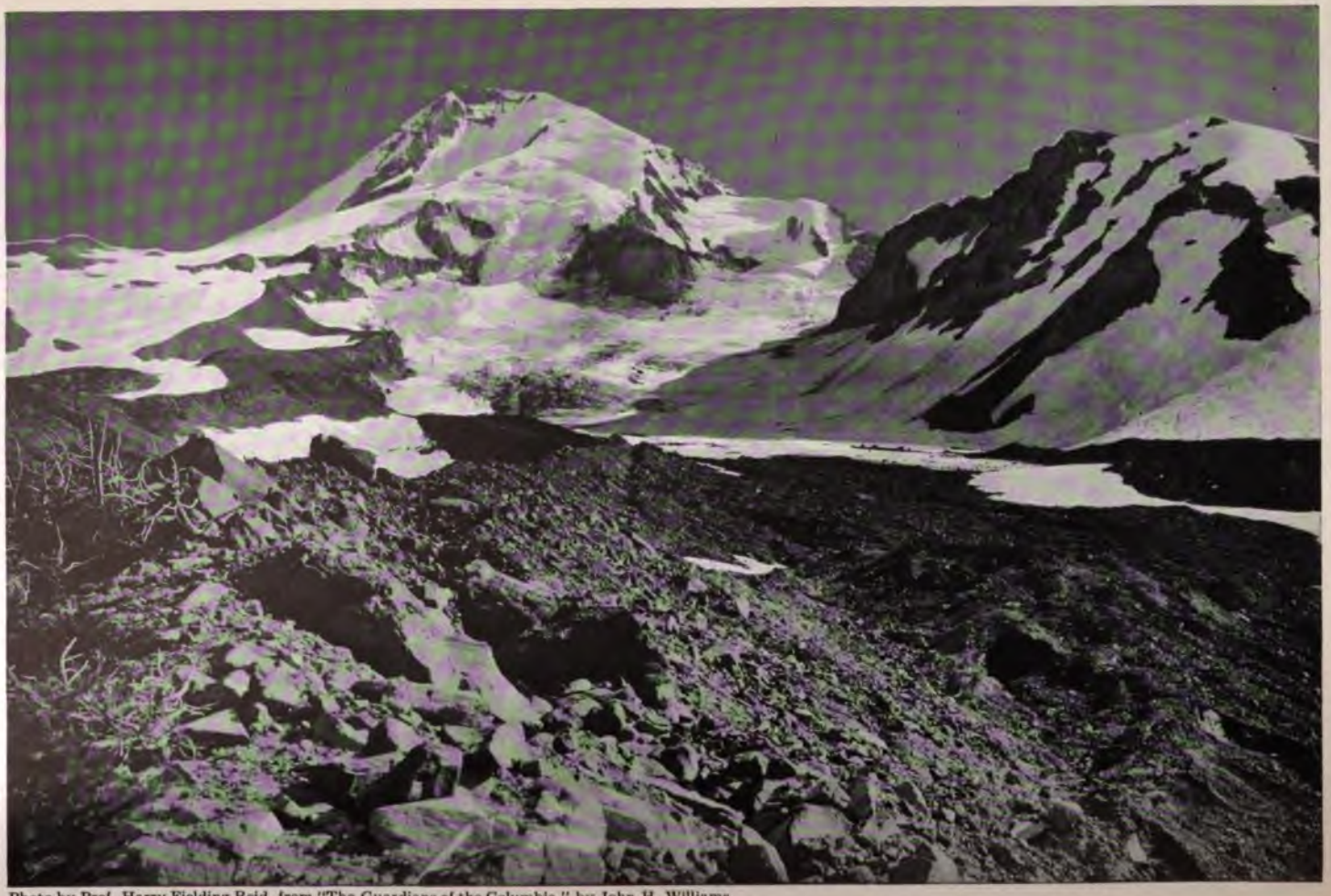


Photo by Prof. Harry Fielding Reid, from "The Guardians of the Columbia," by John H. Williams.

North Side of Mount Hood, from Moraine of Coe Glacier. Ladd Glacier on Right of Pulpit Rock, the Crag in the Middle Distance, with Barrett Spur on the Extreme Right.

a bit dizzy looking down, but for myself, I could look below with perfect ease, although the minute I glanced up at the steep white wall above us, ending abruptly against the sky, I seemed to feel my equilibrium taking flight and must bring my eyes quickly back and clutch my supporting alpenstock. There was an almost irresistible impulse to throw myself backward.

When at length we reached the dangling ropes 1800 feet below the top it seemed we had been traveling upward for an eternity; but there was still an eternity to come. We left our alpenstocks stuck in the snow, grasped the ropes which were suspended from rocks upon the summit and began the last but most toilsome stretch of all the climb. It was hard work and perilous work, and a cold wind battered against us, but finally we scaled the ridge about half past eleven o'clock amid shouts of congratulation from other squads who were already there ahead of us.

I had always supposed, not being familiar with such elevated portions of the world, that in spite of the saw-tooth appearance of a high mountain peak it must necessarily be flat on top; but such is not the case with Mt. Hood. The north side comes straight up to a ridge, and the south side does exactly the same thing, at a somewhat less precipitous angle, so that there is a sharp, narrow line along the summit like the ridge pole of a gabled roof.

We trailed single file along this ridge to Mazama Rock, a huge patch of irregular stone that is near enough to being flat to allow some thirty or forty people to perch among its crannies. Here we ate lunch —more hardtack, chocolate and dried figs. Somebody had a canteen full of cold tea, a sip of which was a treasure and infinitely delicious.

We spent some two hours on the summit taking photographs, writing our names in the Mazama book, depositing this in the Mazama iron box and riveting the box in a hollowed out cave in Mazama Rock.

Mr. Weister, the moving picture man, was there with his apparatus taking pictures of the finish of the climb, the victorious Mazamas clambering up the last few steps of the ascent. It was a cloudy day, not good for pictures and not very good for scenery. We regretted this for the sake of the photographs, though nothing could have been more beautiful than that billowing mass of clouds half way down the mountain, isolating us completely from the entire world below.

The summit was the coldest place I was ever in. I have been cold in Alaska when the thermometer registered 70 below zero, but never was there such biting, overpowering cold as on that mountain-top, nor a wind so piercing and persistent.

Coming down the mountain was fully as difficult, though not so

Climbing on Mt. Hood.

By H. H. Prouty.

Mt. Hood was the Mecca of the Mazamas in 1912. It has been this twice before—in 1894, when nearly two hundred climbed from the south and organized the club on the summit, and in 1901, when the ascent was made again from the southern slope.

This is considered the easiest climb and is usually made by camping over night at timber line, about four miles above Government Camp, and starting from there early in the morning. From here it is simply a question of endurance over long stretches of shaley rock and snow, the grades being easy to Crater Rock, well up toward the summit. Above here is the only difficult work on this side. A large crevasse extends clear across the face of the steep slope, and varies greatly as to width and difficulty of traverse at different times and seasons. The slope above for a few hundred feet, nearly to the summit, is steep and often icy. This requires step-cutting, and, in addition, the guides from Government Camp usually stretch a rope from the summit to and across the crevasse, and either bridge or arrange other safe crossing there.

In 1912 the Mazamas climbed the northeastern side of Mt. Hood, from their camp near Cloud Cap Inn. The first mile or so of their route was a good trail. Then came a mile and a half or two miles of tiresome, loose-cinder climb of medium grade, to the top of Cooper's Spur, 8500 feet high. This was a good try-out for aspirants for Mazama membership. If a candidate could make this point in about three hours, in good condition, he could usually climb to the summit a day or two later.

From the top of the Spur, the route crossed the narrow ridge between Eliot and Newton Clark Glaciers, descending slightly at first, then rising sharply a short distance over soft and uncertain footing, to Paint Rocks. Here the ridge is covered by the big snow field, which extends clear to the summit, the upper reaches broken by protruding rocks.

Once the parties are officered, roped, goggled and painted, the snow climb begins. It is gradual at first, but soon grows steeper and zigzaging is resorted to in order to insure better footing and moderate exertion. An immense crevasse to the left is passed, which reminds the climbers

to place their feet and alpenstocks firmly, as the big opening always yawns below.

Early each summer the managers at Cloud Cap Inn have a rope attached at the summit and stretched down over this steep snow slope about 1800 feet. This spans Crescent Crevasse, which is a hundred feet or so in extent, and in shape true to name, the horns of the crescent pointing down. Alpenstocks and ice picks are left here, and the summit is reached by the aid of the rope, climbers remaining roped to each other. This grade is probably 60 or 65 degrees, the last 100 feet being steepest. To the beginner going up it seems fully a 75-degree grade, and when he grasps the rope and lets himself over the brink on the return, it is to him little less than perpendicular, and he is inclined to turn around and back down, or slide. But if one faces out and steps down boldly, keeping a good hold on the rope, he soon gains confidence and descends much more safely and comfortably.

Such are the old routes.

The writer, after study of the northern slope from Cloud Cap, believed the summit could be reached from that side. Evidently Mr. George Riddell had come to the same conclusion, for as soon as the climb here was suggested, he decided, with the writer, to make the attempt.

Neither of us had ever been farther on this route than Eliot Glacier; therefore all we knew of it was learned from below.

We left camp at 5:10 A. M., July 18th, following a route taken by a party going to Barrett's Spur the day before. This took us across the soft moraines and rough ice of lower Eliot Glacier and up a steep little climb to the top of the ridge west of it. It was splendid climbing for a long distance, going southwesterly up over the snow fields and bare, rocky slopes between Eliot and Coe Glaciers. The western limit of this big plateau or slope is a sharp and broken ridge overtopping high cliffs. Between them and Pulpit Rock, directly west, Coe Glacier descends steeply in a sort of ice cascade to the immense basin below. We followed this broken ridge with increasing difficulty to where the glacier had climbed nearly to its level. Here was a great ice field covered with snow, extending westward in a symmetrical and beautiful curve completely across the glacier. Below was the tumbling ice cascade; above the ice stream was again broken by great crevasses and seracs. It was like a great curved boulevard 300 or 400 feet wide and half a mile long, tilted to an angle of 45 degrees.

By crossing this horizontally, we avoided a bad cornice higher up

on the western side. It was a steep climb onto the ridge, but with step-cutting and care we landed safely.

We were now on the ridge leading up southerly from Pulpit Rock between Coe and Ladd Glaciers. The next quarter mile was the hardest of this ascent. It was steep, the rock was rotten and uncertain, and there was more or less ice. Finally we reached the snow ridge, and soon after had a close view of our Bergschrund. We had seen it from Cloud Cap Inn and knew it must be large, to be seen at such a distance. We had wondered all the way up if it cut the ridge completely and would prove impassable. It was large enough, certainly; but our ridge had joined another coming up between Ladd and Sandy Glaciers, and the snow extended west some distance to the precipices above the Sandy. By cutting steps up around the western end of the big chasm, then 150 or 200 feet more up the steep, icy snow, we were again on the summit of the ridge, and had easy climbing over moderate grades to the top of the mountain.

The summit was gained at 10:05 A. M., the climb having been made, without once turning back, in less than five hours. It would have been made quicker, but the writer was in poor condition and held back his intrepid companion, who alternated the lead with him all the way.

After remaining over an hour on the summit, we were back at camp, via Cooper's Spur, before 12:30 o'clock, having had a most interesting and enjoyable trip.

Everybody in camp seemed to think that ours was the first ascent of the north or northwestern side of Mt. Hood. Later it was claimed that this ascent had been made some years before. This the writer has no reason to doubt, since the route presents no great difficulty or danger to an experienced climber.

Forsyth Glacier, Mount St. Helens.

E. C. Sammons.

To a little band of brave, hardy mountaineers and members of the Mazamas is accredited what is probably the most noteworthy rescue in the history of mountaineering in America. The rescue took place on Mount St. Helens in the summer of 1908 when seven members of the Mazamas, led by Charles E. Forsyth, of Castle Rock, Washington, saved the life of John Anderson, a wounded woodsman, by carrying him entirely across the peak at night to the Mazama camp at Spirit Lake. The thrilling story of this remarkable rescue, while a page in the mountaineering history of the country of which we might well be proud, has nevertheless been inadequately told. In fact, few aside from the modest actors and their immediate friends are acquainted with the stirring details of this splendid life saving.

To commemorate the unselfish service of Mr. Forsyth and his followers, efforts have been made by the Mazamas to have the finest of the St. Helens ice streams named "Forsyth Glacier." The Washington legislature, due to the efforts of John H. Williams, the Tacoma, Washington, publisher, has officially recognized the achievements of these brave mountaineers by naming one of the north side glaciers after Mr. Forsyth. Further efforts are to be made to have the name officially adopted by the United States Board of Geographic Names.

The story of the rescue of the wounded man is thrilling indeed. One night while the Mazamas rested after a day spent in climbing the mountain and exploring the surrounding country a weary, haggard man staggered into the Mazama camp and gasped out the story of the accident. That morning he and two companions had passed Mazama camp before daybreak, climbed the mountain from the north side and had started down the south side when a loosened boulder, plunging down the steep mountain-side, struck one of the party, John Anderson, breaking his leg. His companions rendered such first-aid assistance as they could, and somehow got him down the long slope to timber line. Here, one of his companions watched by him while the other set out for the Mazama camp, the other side of the mountain, for assistance. The courier did not cross the mountain again but took a trailless route around the mountain, suffering untold hardships in his wanderings through the tangled maze of canyons.

Scarcely had the man's story been told those at the Mazama camp,

fire before a rescue force was organized. The leader was Charles E. Forsyth, a man well past fifty, but a mountaineer of undying courage, sound judgment, wonderful physique and thorough knowledge of the mountain. Without his assistance the rescue might never have been made. Throughout the night Forsyth and his party followed the messenger in his return to the injured woodsman. They groped their way across countless ravines, through dense undergrowth, up and down many lava dikes and across icy torrents until, shortly before daybreak, they saw the signal fire of the watcher, who had been reinforced in his vigil by two Mazamas—C. W. Whittlesey and Francis Benefiel. These men had climbed the mountain the day before, had seen the footprints of the trio of woodsmen and had followed them to their camp at timber line, where the injured man was lying. Their assistance was invaluable, for they made a signal fire on a high ridge near the wounded man, permitting the rescuers to reach their objective point several hours sooner than they might have had they depended upon the guidance of their escort. With Whittlesey and Benefiel as guides they soon found Mr. Anderson.

A litter was improvised of alpenstocks and canvas sleeping bags, the injured man was placed upon it and the long, arduous march across the mountain was begun. The story of that laborious day and terrible night probably has never been better told than by Frank B. Riley, the then secretary of the Mazamas, who writes:

"The day dawned and grew old, and still these men crawled upward in the frightful body-breaking struggle. Twelve hours passed and they had little food and no sleep save as they fell unconscious downward in the snow, as they did many times, from fatigue and lack of nourishment. At four o'clock Anderson was again on the summit. Then, without rest, came the descent to the north. Down the precipitous cliffs of ice they lowered him as tenderly as might be; down slopes seared with crevasses, shielding him from the falling rocks; over ridges of ragged lava, until in the deepening of the second night they found themselves again at timber. But in the network of canyons they had selected the wrong one and were lost. Here at three o'clock they were found by a second relief party and guided over a painful five-mile journey home."

Graphic as they are, Mr. Riley's words only faintly describe the distressing hardships of that ascent and descent at such an altitude. Picture in your mind carrying a 170-pound man up a mile of altitude in the heat of the day and down the treacherous icy slopes in the cool of the evening, when, with the mountain in shadow, the ice is even more treacherous. Place yourself in the injured man's position. It makes one shudder to think of it.

Day found the rescue party at Mazama camp, where an emergency hospital had been established and Dr. Otis F. Akin, assisted by Miss

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Lower Eliot Glacier, Mount Hood.

Copyright by G. M. Weister.

Ice Pinnacles of Eliot Glacier, Mount Hood.

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Looking West Across Eliot Glacier from Cooper's Spur. Route of Mazama Ascent in 1912 was up Skyline Ridge, at Left.

Mazamas Exploring Glacier, Mount Hood.

Emma Harding, a trained nurse, both Mazamas, set the broken bones, sent the patient off to Castle Rock, 40 miles away, thence to a Portland hospital.

John H. Williams, of Tacoma, author of those two delightful books on mountaineering, "The Mountain that Was God" and "The Guardians of the Columbia," has written about this rescue; in fact, his writings have largely contributed the material for this article. I am indebted to Mr. Williams for the names of the members of the rescue party, which included Charles E. Forsyth, of Castle Rock; Rev. W. J. Douglas and Herman E. Doering, of Portland; Raymond Casebeer, of Castle Rock; H. Luther Dickens, Tacoma; Carlos A. Pennington, of Seattle, and E. G. Williams, the one-armed guide of Spirit Lake. In one of his articles in the Tacoma Ledger Mr. Williams credits Mr. Dickens with a glowing tribute to Mr. Forsyth. Mr. Dickens, by the way, has lasting remembrance of this trip; he took part in the rescue wearing the thinnest of shoes, which were torn to pieces, and the last stage of the journey was made in such articles of wearing apparel as others could spare, wrapped around his feet. Mr. Dickens has said:

"We never could have come through it alive without Mr. Forsyth. He is the bravest, most resourceful mountaineer I ever knew or ever heard of. He'd walk a 70 per cent ice slope as lightly as if it were a rock stairway. There was a high wind on the mountain, and in the afternoon it became very cold. But when anybody talked of danger Forsyth laughed at him. Some one said such a thing had never been done before. 'Nonsense, boys; this isn't anything much,' Forsyth answered; 'we'd do this for a Siwash.' Thus he kept us on the job; nobody wanted to quit after that."

In "The Guardians of the Columbia" Mr. Williams suggested that the service of Mr. Forsyth and his party might fittingly be honored by giving the name "Forsyth Glacier" to the beautiful ice stream whose picture appears in this magazine. In July, 1912, after climbing Mount Hood from the south side and meeting the Mazamas who made the ascent from Cloud Cap Inn, on the north side, and descending with them, Mr. Williams talked the matter over with with the members of the club around their camp fire. The proposed name was approved most heartily and a committee was subsequently appointed, with Mr. Williams at its head, and resolutions were forwarded to the United States Board of Geographic Names. But here they met with disappointment. Although the proposal dealt with the name of a mountain in the Pacific Northwest, and the name would be used principally by Northwesterners, Washington refused to act

either to confirm or deny. This for the simple reason that the board dislikes to adopt the names of persons still living.

"At a meeting of the geographic board this forenoon," wrote Dr. Henry Gannett, chairman, to Mr. Williams, "I brought up the matter of Forsyth Glacier, but the board would not consider it, probably for the reason mentioned in my last letter. (Because Mr. Forsyth is still living.—Editor's note.) This, however, is not a rejection, but simply no action at all. I would suggest that you go ahead and get the name into use."

"I would suggest that you go ahead and get the name into use." This is precisely what Mr. Williams and the Mazamas have been trying to do and, thanks to Mr. Williams, they are doing. The first step was in getting the recognition of the Washington legislature. The Mazamas have since the 1908 outing called this beautiful ice stream "Forsyth Glacier," and the name is in general use throughout the Pacific Coast among mountaineers and those persons familiar with the circumstances surrounding its naming. Perhaps after Mr. Forsyth dies his name will be officially catalogued by the geographic board. We hope so. No more worthy name could be given, not only because such action commends heroism and self-sacrifice, but also because it will teach an invaluable lesson in unselfish service. After all, no matter what final action is taken by the Geographic Society, the name will live always in the memory of the Mazamas.

The objection to naming landmarks after living persons, as Mr. Williams points out, is, of course, well founded, but it has not been and should not be a rule without exceptions. Mr. Williams writes:

"The geographic board passes upon the places named in the maps compiled by the government departments. In the Mt. Adams and Mt. Hood quadrangle maps recently issued, and presumably approved by the board, six glaciers are named for living men. All the persons thus honored are good men and true, and I hope their names will remain on the glaciers, but all of them together have rendered no such service to mountaineering in America as that of Forsyth and his companions."

To refer again to Mr. Williams' writings, let me close by quoting from his words of commendation for Mr. Forsyth and the members of that brave rescue party. He says:

"Medals, Carnegie fund awards, legislative resolutions, appreciation more lasting than bronze—all these are within the merit of a little band of men who five years ago performed an almost unparalleled service on one of the great mountains of Washington. Yet this epic battle against a snow peak for the prize of a man's life is known to but few outside of the modest actors in it. Uncommemorated, it is in danger of being forgotten.

"The most beautiful thing in the world is the saving of a human life.

It matters not whether it be a great life, a friend's life or the life of a stranger. This is the story of the rescue, at terrible risk to the rescuers, of an unknown backwoodsman. Had he been rich or prominent the country would have rung with praises. Deeds like this in England win the Victoria cross. I am chary with the superlative. The tinsel with which it covers mediocrity soon betrays the shoddy. But I do not fear to bestow it upon real worth. There is too little whole-souled praise in the world. It is easier to assume that the heroes are all dead. Let me, then, say that the finest adventure in American mountaineering and the finest bit of mountaineering in all the annals of American adventure was the saving of John Anderson, 'lumber jack,' on Mount St. Helens in August, 1908."

A Fragment.

Yonder turn thy gaze
  To that intrepid peak which fills the sky;
To human eyes still changeful, whether in
  The hueless lights of cold and unsunned dawn,
Or in the warmer tints of brilliant sunsets;
  Yet endlessly the same, uplifted—aye,
Unmoved, most strong, unmindful of the storms
  Of human fate and human destiny.
Fact visible of God invisible,
  And mile-post of His ways, perpetual
And snowy tabernacle of the land;
  While purples at thy base this peaceful sea,
And all thy hither slopes in evening bathe,
  I hear soft twilight voices calling down
From all thy summits unto prayer and love.

—Francis Brooks.

A Night on Mt. St. Helens.

By Gertrude Metcalfe, Historian of the Mazamas, 1908.

The Mt. St. Helens outing of August, 1908, calls up a picture of a little band of intrepid Mazamas cheerily calling out to their leaders as they clung to the rim of the mountain's summit in the gathering darkness of nightfall, a sharp precipice of ice beneath their feet, below them two vertical miles of slippery ice, broken only by yawning crevasses and delicately poised rocks. They were rash human intruders in a darkening waste of precipitous rock-ribbed ice. Desolation enveloped them. Around them in the strange frozen gloom loomed fantastic unknown grandeurs of giant carved ice masses and volcanic upheaval. The words of good cheer of comrade to comrade were snatched from their lips by the fierce arctic wind in an agony of lamentation. The silent expectant earth below them seemed waiting breathless for the tragedy that was to come.

The story of the safe descent to timber line of these twenty-six Mazamas reads like a miracle. It was indeed a triumph of faith over threatened destruction. One misstep, one moment's loss of courage during the seven-hour descent on the part of a single member of the party, and all would have perished.

When sixty Mazamas in khaki and corduroy pitched camp on the shores of Spirit Lake their merry-makings and roaring camp fires, their brilliantly improvised opera bouffe, flashing sallies and gay songs that enlivened the shadows of those giant firs gave no presage of the stress and peril that were to come. The thrilling rescue of a young Swede crippled by a falling rock near the summit of the mountain, elsewhere narrated in this issue of the Mazama magazine, gave new zest of adventure to the Mazamas.

On Friday, August 7, camp was moved to snow line preparatory to the official ascent. The next morning (Saturday) saw thirty-six climbers in line for the summit at 8 A. M. Of this number twenty-six succeeded in reaching the top after a most perilous ascent occupying fully eighteen hours from timber line camp until the return to timber line at two o'clock Sunday morning.

The north side had been selected by Edmund P. Sheldon, chairman of the outing committee, because it presented more interest than the south side, a "kindergarten climb" taken by the Mazamas ten years before. But as the north side of all our snow peaks offers

peculiar dangers not to be found on the south side, and as the snow slopes were very steep and tedious, without any opportunity for the climbers to relax the one set of muscles until the top was reached —an eleven-hour climb—some members of the party dropped out on the way up.

Moreover, the danger from rolling rocks from the steep moraines of loose lava above, a constant menace to the climbers during the eighteen hours consumed in the ascent and descent, kept the nerves of all at such tension that this in itself was most exhausting. At one point between one and two hours were spent in passing from the snow to the rocks, as each member of the party traversed the distance alone owing to the peril of falling rocks.

Thus it happened that it was 7:15 when the summit was reached. Crossing the crater on a great field of snow the leaders of the party deposited a new record book, containing the names of all who reached the summit, in the Mazama copper box, and then paused a few moments in wonder at the grand panorama before them. Looking out over the wall of fog and smoke they saw the red sun sinking in the west, its last rays illuminating with unearthly glory the great peaks of Hood, Adams and Rainier. It was hard to turn away from so heavenly a vision, but an icy wind was blowing and peculiar dangers now confronted them.

The north side of the mountain, which had already been in shadow a considerable time, was now a solid sheet of ice, the melting surface snow having hardened. Each step had to be cut with an ax. The mountain sloped sharply down from the summit at an angle of 60 degrees or more for a distance of 400 feet. This was the dome of the mountain curving outward like a ball, so that when the 50-foot life line was placed the climbers at the lower end were quite out of sight of those at the upper end of the rope.

John A. Lee was now in charge of the descent. The dangerous task of advancing with the life line was entrusted to Dr. Otis Akin and Frank Riley, who, armed with Swiss ice axes, were lowered to cut the steps for the descending party. Dr. W. C. Adams, a new member, showed much skill in rope work.

Eight times the life line was lowered over the dome, twenty-six men and women hanging over dizzy space unsupported until the line was placed and they could continue the advance down the 400-foot precipice. While they were still midway on the dome the last rays of the departing sun left them and the pall of darkness descended upon them. The awful majesty of the mountain enshrouded them, the icy air bristled with unknown perils. Below them stretched two

miles of treacherous ice seamed with crevasses and broken lava. But undaunted the ten women in the party called out cheerily to one another. The safety of the entire party lay in the keeping of each member. Only absolute confidence in the skill of their leaders and the resolution to do the utmost for the safety of others averted disaster. It was probably the finest bit of team work ever done in the Pacific Northwest.

Suddenly as the Mazamas stumbled in the darkness over the broken lava of "the lizard" a glimmer of light appeared in the great black void below. The wonderful cheer of this distant harbinger of warmth and comfort awaiting them can hardly be imagined. In the network of canyons that branch out from the summit it is the easiest thing in the world to select the wrong canyon and so become hopelessly lost. But this solitary beacon fire, glowing merrily, led the weary party straight to camp. It was provided through the thoughtfulness of C. H. Sholes, president of the Mazamas, who when a short distance from the summit had with generous self-sacrifice quietly surrendered the pleasure of standing on the summit, to turn back and assist a group of Mazamas whose strength had not proved equal to the ascent.

At two o'clock Sunday morning the Mazamas dropped into timber line camp, where hot chocolate and sandwiches, a blazing camp fire and blankets awaited them. No one had a scratch or a bruise as the result of the eighteen hours of stress and peril. A good night's sleep restored all to normal strength and activity.

By Trail From Adams to St. Helens.

By Edgar E. Coursen.

Early in the summer of 1913 I decided to spend my five weeks' vacation in climbing Hood, Adams, St. Helens and Rainier. While arranging with Mr. R. C. Lange, of Lange, Washington, to play host to our party during our stay at Spirit Lake, at the foot of St. Helens, he suggested that we might like to walk over the rangers' trail from Adams to St. Helens.

I decided at once to do so, and as soon as Guler was reached on the Mazama trip to Adams I engaged guides and pack horses for the long trip to St. Helens. During the Mazama outing a party was organized consisting of Mrs. C. E. Dillinger, Mrs. J. P. Morgan, Miss Anne Dillinger, Miss Marion Schneider, Miss Mary Henthorne, Miss Martha Nilsson, Dr. C. V. Luther, H. H. Cockran, Raymond E. Coursen and the writer. At Guler, the starting and outfitting point, we were joined by Joyce Flescher and J. W. Shipley, of Underwood, Washington, and by the guides and packers, Wm. Kingman and L. S. Robbins, of Guler.

We had six horses, a dog and a bountiful supply of provisions of all kinds.

The trip was made in four days of ever increasing interest and beauty of scenery. No two days were alike—hardly two hours were the same. It was an ever changing panorama of forest, mountains, canyons and streams. It is impossible in a short article even to mention the many beautiful bits of scenery, but the one that most impressed me was met with near the close of the fourth day. After descending a steep hill we saw suddenly, through a break in the trees, Spirit Lake, the beautiful. Overhead was the blue sky, to the right a waterfall and straight ahead St. Helens, the end of our journey.

We soon reached Lange, the best of all stopping places, where a delicious chicken dinner awaited us. Just think of fried chicken and quarts of fresh strawberries after four days in the woods!

After climbing St. Helens the trip out was made by way of Castle Rock, where we separated, three of us going to Rainier and the rest returning to Portland.

The total cost per person of the eight-day trip from Guler out to Castle Rock was only $17.78. This included guides, horses, supplies, cooking utensils, expenses at the Lange homestead while we were climbing St. Helens and transportation for ourselves and dunnage from Lange to Castle Rock.

A Holiday on Fuji San.

WALTER SCOTT MCBRIDE.

As the steamer nears the entrance to Tokyo Bay you will see, if the day be fair, far to the southward, a great gray cone covered with a glistening mantle of snow, standing out against a soft whitish-blue sky. It is Fujiyama, Japan's lordliest mountain and the pride of every inhabitant of the empire. If you are fortunate enough to see it on the day you enter Japan you will always be looking for it. It will dominate your horizon just as it dominates Japan's. It is incomparable and quite unforgetable. It is the most beautiful thing in a country where nearly everything is beautiful. It is more like a work of art than a work of nature. From where one sees it in Yokohama it almost seems as if it had been fashioned by the beauty-loving Japanese themselves, so delicate and graceful and artificial are its outlines and so magical the ever changing colors of its slopes and the sky above it.

Fujiyama has been the theme of poets from the earliest time. Hokusai and Hiroshigi, the greatest of Japan's artists—to say nothing of many lesser ones—devoted their lives to expressing in their pictures the charms of this beautiful mountain. It is called the "Sacred Mountain" and is so regarded by many Japanese. Large numbers of pilgrims climb the mountain every year as a religious act, and in the rude stone hut on the summit the priest stamps their cloaks with the imprint of the shrine, and they have stored up merit against the day when they must make their final pilgrimage.

Go where you will in Yokohama or any other city, to the street bazaars, where trifles are sold for a few *sen*, or to the shops where the exquisite objects in lacquer and bronze and ivory are temptingly displayed, and you will find Fuji San's "counterfeit presentment" on teapots and plates, fans, lanterns, lacquer boxes, screens and countless other articles. The photographers will tell you that they sell more photographs of this mountain alone than of all other Japanese scenes combined.

I shall never forget my first view of Fuji. I had succeeded, soon after my arrival in Yokohama, in securing lodgings at the Cherry Mount, a family hotel for foreigners on the Bluff. My room was on the third floor, and from my window I had an unobstructed view of the entire city, its expanse of roofs lying below me like a gray-

Photo by Dr. U. M. Lauman, from "The Guardians of the Columbia," by John H. Williams.

North Side of St. Helens in Winter, Showing "the Lizard" and "the Boot."

Copyright, G. M. Weister.

Forsyth Glacier, Mount St. Helens, Named for Leader of a Mazama Rescue Party.

Photo by Dr. U. M. Lauman, from "The Guardians of the Columbia," by John H. Williams.

St. Helens, North Side, Seen From One Mile Below Snow Line. Black Butte is on the Left.

From "The Guardians of the Columbia," by John H. Williams.

Northeast Side of Mount St. Helens, from Elevation of 6000 Feet.

Photo by Marion R. Parsons, from "The Guardians of the Columbia," by John H. Williams.

Mazamas on Summit of Mount St. Helens, 1908. Picture was taken at 7:15 p. m. Mount Adams at the Right and Mount Rainier (Tacoma) in the Center.

tiled sea. To the right was the beautiful Bay of Yokohama, always affording interest with its fleets of fisher boats and big steamers from all parts of the world. Directly in front was the bay shore extending to the north in a long line of wooded bluffs toward Tokyo. In the west were low tree-clad hills and the rocky range of the Hakone Mountains. I had been told that Fujiyama could be seen from Yokohama, but did not know in which direction to look for it. I had been a guest at the hotel two days when one clear morning as I raised the window blind, there, over in the west, just beyond the Hakone Mountains, was a towering peak covered from base to summit with a dazzling mantle of snow. It was not altogether unfamiliar, for it was—quite as my Japanese friends had told me—strikingly like our own St. Helens and was in precisely the same direction from Yokohama that St. Helens is from Portland Heights. From that day I was one of Fuji's admirers. On account of the heavy mists in the air, much of the time the mountain was hidden, and the days when it was visible were always memorable for us at the Cherry Mount. The mountain came to be a sort of barometer. If there were no clouds obscuring it we could nearly always count on bright weather; and part of the daily routine when the guests entered the dining room at breakfast time was for some one to look out and see if the mountain was visible and announce the fact.

While, as I have said, Fujiyama is like a work of art, it is not, from a Mazama point of view, a great mountain. It has no glaciers on it—during July and August it has practically no snow—and in its ascent there are no formations that would seem to call for special mountaineering knowledge. Any one physically fit could make the climb without encountering the least danger, although it must be said that exertion at a high altitude is not a thing that every one should undertake. Fuji represents a slow, fatiguing climb of 12,365 feet, the lower slopes through ashes and pumice stone, and part of the last 3,000 feet over a surface that is almost as smooth and hard as metal. Rude huts are built at approximately every 1,000 feet, where one may rest and have refreshments, so that the ordinary hardships of mountain climbing are minimized. There can be nothing more beautiful, however, than the view from the summit. It is that that makes climbing Fuji a much more delightful experience than the ascent of any other mountain could possibly be.

Last June the heavy white covering of snow began to be streaked with great dark patches, and toward the end of the month Fuji had only a jagged white cap, the condition that artists consider the most picturesque. The mountain then became a thing of superb

beauty. Often after the office had closed for the day it was my greatest pleasure to sit at my window and watch the colors come and go in the sky behind the mountain. The great gray wedge with its flat top silhouetted against a golden mist that blended up into a greenish-blue sky was a sight alone worth going to Japan to see. The colors were never the same two days in succession, but were always beautiful. During the long summer twilight hours, when the atmospheric conditions changed, the mountain began to manifest new charms. Its serene height over there in the lovely southern sky seemed always to fit one's mood like a sympathetic friend.

It had been my purpose ever since my arrival in Japan to climb Fujiyama, and early in July I began to make my plans for the trip. Nearly every one who had lived for any length of time in Yokohama had been to the summit, and no one considered it a difficult climb. On the 10th of July the mountain was officially "opened," when scores of pilgrims made the ascent. Almost daily thereafter we read in the newspapers accounts of the experiences of small parties of foreigners on the mountain, which made me more than ever impatient to have this outing. I found it a rather difficult matter to organize a party. Most of the people I knew had already made the trip, and something always occurred to interfere with the plans of those who had not; so that it looked for a time as if I should have to become a pilgrim if I really expected to get to the mountain.

It was at this time that I met a young man from San Francisco by the name of Pool, who was as eager as myself to make the climb. We had two difficulties to contend with. In the first place the weather was not at all favorable for a good view from the summit, and also we did not consider that our regular week-end gave us sufficient time in which to make the trip comfortably. Fortunately, however, our opportunity came when the first anniversary of the old emperor's death—August 4th—which fell on Monday, was declared a holiday. We proposed to leave on Saturday afternoon for Gotemba and to make the climb in the night, returning to Yokohama on Sunday night and using our holiday to rest in. For two days it rained hard, and even by Friday the conditions were so uncertain that we gave up all thought of leaving the next day. We bought our few necessary provisions, however, and were quite prepared to leave if the weather cleared. On Sunday morning the sun came out and Fuji was in view, but we could not rid ourselves of a feeling of uncertainty. However, at noon we decided to take our chances and start that afternoon.

We left Yokohama at 2:30 o'clock for Gotemba, the town near

the base of Fuji, from which most of the expeditions start. We arrived there at 6 o'clock. The town was full of pilgrims either coming from or going to the summit, and wherever we went we saw companies of these men in their picturesque white costumes of tight-fitting cotton trousers, white two-toed socks (*tabi*), straw sandals (*waraji*) and voluminous wide-sleeved cloaks. On their heads they wore the flat straw rain hats, and at their waists were tiny bells which tinkled musically as they walked. Each carried a staff and a roll of matting, the latter serving as a protection from wind and rain.

We left Gotemba at 6:30 o'clock in one of the small horse cars that operate between Gotemba and the village of Subashiri, which lies just at Fuji's base. Our car was one of a dozen, and each car was hauled by a single horse, which had a hard time of it up the grade with its heavy load of pilgrims. For two hours the horses toiled along in the direction of the mountain. Just before dark the few gray clouds that had caused us some uneasiness disappeared and there was not a trace of mist in the soft blue sky. Our string of cars stopped at intervals at wayside inns and women came out with bread and fruit and post cards. We saw a gorgeous sunset of flaming crimson and then the colors faded and the shadows began to steal over the wooded plain and the stars came out. As we neared the mountain we could see the lights at the first few stations and the strings of lights carried by the companies of pilgrims on the lower slope of the mountain.

We arrived at Subashiri at half after eight and walked up the street to find an inn and to hire a guide. The town is simply a cluster of weather-beaten houses, with one street lined with inns and shops where the necessary supplies for the trip to the summit may be bought. During the two months the mountain is open there is a good deal of activity there, as most of the parties take the Subashiri route, and the little town is crowded with pilgrims going to or returning from the summit.

While Pool went off to buy our staffs and hats and *warajies* and to hire a coolie, I ordered tea and got out our lunch. It took us more than an hour to get ready for our climb. Pool had considerable difficulty in finding a guide, and the man he brought in proved to be anything but a prize. He was blind in one eye and was so deaf that unless we were quite close to him we had to yell at him. Also he was exasperatingly slow. At 10 o'clock we were ready for the climb, and with our slow-going coolie leading we started off up the road toward the mountain. For an hour we plodded steadily along over a path of coarse cinders that at times were a foot deep. The

night was a perfect one, the heavens filled with stars. A storm was apparently raging on the other side of the mountain, for at short intervals the lightning would flash on the horizon, revealing Fuji's splendid southern angle. There seemed to be little wind when we were walking, and we got very warm and thirsty, but whenever we stopped to rest a chilling breeze blew past us.

We arrived at station No. 1 at 11:30, and after we had rapped sharply two or three times a sleepy old man came out of the smoky hut. Pool requested him to bring us some soda water. We did not rest long, as it was quite cold, and besides we wanted to be well up the mountainside before sunrise. The way now led through a dense wood, and we had to hold our paper lanterns close to the ground to find the path. At station No. 2, which we reached at a little after midnight, we found the small hut crowded with pilgrims, every bit of space on the floor being occupied. We rested here and at the third station only a few minutes. It was more than an hour before we reached the fourth station, and we were quite willing to stop and rest. This station was rather a large one, surrounded by small trees and underbrush. There was a good deal of commotion in the place when we arrived. Although it was only one o'clock, many of the pilgrims were wandering about preparing for an early start up the mountain. One old white-haired man walked out into the space in front of the huts, turned his face in the direction of the summit and proceeded to make a long prayer, rubbing his hands together and at intervals sucking in his breath, which is considered a special sign of piety, and ended by clapping his hands.

For an hour we toiled up through the trees along the zigzag path that was steadily becoming steeper. We were well started on the actual slope of the mountain and we made much slower progress. Shortly before two o'clock we came out from the trees and found ourselves on the bare ridge of the mountain. There was not so much as a weed on that desolate expanse of ashes and broken pumice stone and occasional ridges of lava. We were the only living things in a world of wreck and silence. We could see the lights of the towns in all directions far, far below in the black void. Whenever I looked out at the stars in the sky and then cast my eyes down at these earthly constellations it made me dizzy and faint, and a feeling half of awe and half of fear swept over me.

Our guide had one qualification, he knew the way; but on this steeper incline Pool and I could not keep up with him, so that we were frequently obliged to shout to him to halt. At two o'clock, after a wearing climb, we reached the intermediate station between

No. 5 and No. 6 and decided to take a long rest and to have some tea. The place was a rude low hut built of heavy timbers, with fragments of lava piled against it on the outside, well under the shelter of the mountain. It had no windows, and the smoke from the charcoal *hibachi* and the fire the man kindled for us filled the room. In the corners were Japanese men snoring loudly under their quilts. Our guide after eating his rice and tea wrapped himself up and fell asleep, and we had some difficulty in getting him awake and in making him understand that we intended to proceed.

It was now a little after three o'clock, and away off in the east, in the direction of Tokyo and Yokohama, we noticed a suggestion of dawn—just a faint gray line on the horizon. Whenever we turned around or stopped to rest we saw that this tiny patch of light had grown larger and that the stars that had shone all night with such brilliancy were beginning to pale. The lights in the towns, too, were beginning to go out. There was at this time a very decided change in the appearance of the sky. The light on the horizon spread upward and the stars slowly faded out. We could now make out the dark summits of the mountains below us with seas of thin mist lying between them. Yamanaka Lake, that we had seen as a faint white cloud during the night, now revealed itself a tiny pool of quiet water. The gray tinge that had been the first intimation of dawn had by this time filled the entire heavens, and on the horizon, which we could now make out, a pale yellow glow was stealing up.

At 4:30 we were at the seventh station, which lies at an elevation of about 9,000 feet. Just as the first gray light had dispelled the darkness, so it in turn gave way to this pale yellow tinge that now suffused the heavens, slowly deepening at the horizon and filling the great vault above us with a warm glow. There was not a breath of wind and no sound save the far-away tinkle of pilgrim bells. It was as if all nature were hushed with expectancy. The coming of the sun was being heralded by great shafts of light that shot up from below the horizon. Gradually the sky took on a faint flush of pink that slowly changed to red and turned the strips of clouds away off in the east from violet to yellow and from yellow to long tongues of flame. From our station, high above the surrounding peaks, the fiery glow in the east and the deepening colors in the vast spread of the sky above us was a spectacle that was overwhelming in its magnitude and grandeur. It made one think of what the resurrection morning might be like.

The mountains below us, that had looked like mounds of soft blackness, with the coming of the sun took on a tinge of deep green.

We stood fascinated by this gorgeous pageant in the sky. The far-off sea lay like a sheet of fire, and out of this we saw at last the arc of the sun begin to rise, and in a few moments this great ball of molten copper flashed out over the horizon and struck the crest of Fujiyama with a flood of brilliant light. As if it were a signal, all the mists below us suddenly arose and disappeared and the mountain tops and valleys were spread before us like an expanse of dark green velvet.

Between the seventh and eighth stations the mountain was much steeper, and we left the soft ashes behind and were stepping cautiously over a surface that was as smooth and hard as metal, and we had some difficulty in finding a foothold. It was quite the most wearing part of the climb, and was made more trying owing to the fact that we were beginning to feel the effects of the high altitude and the want of food. We were obliged to rest after every few steps, and when we looked at the steep slope up which we had still to go before we should reach the next station we were almost discouraged. The peak above us, now that it was broad daylight, presented a peculiar aspect. Across the expanse of desolate black were long streaks of dull red and purple, showing how great were the fiery forces here in the long ago when Fuji was an active volcano. Far above us, near the summit, we saw the tiny lines of white figures made by the bands of pilgrims. Now and then companies of these unwearied fanatics slowly passed us, chanting their monotonous refrain "Rokkon shojo" (May our six senses be kept pure and undefiled).

At the eighth station, a low hut like the others, we had breakfast and lay down for a few minutes. When we again started to climb we were surprised to find after our rest and food that we could travel much more easily. From this point to the summit our path was a zigzag over small fragments of stone. At just eight o'clock we passed the last angle in the path and mounted the flight of stone steps at the summit. We crossed over a stone parapet and found ourselves in a long alleyway with a row of low huts built of piled up stones on one side and the heavy stone wall which followed the brink of the summit on the other. Everywhere were pilgrims. They swarmed up and down in front of the huts, and through the open doorways, we saw numbers of them sitting on the floor eating or stretched out under quilts asleep. The sun shone brightly, and as long as we kept out of the chilly wind we were quite comfortable. The first hut sheltered a shrine with a large bronze Buddha and metal lotus flowers and candles, and here the pilgrims came to have their cloaks stamped and to say their prayers. After having our staffs marked with the sacred

imprint we went into one of the huts and ordered tea and ate the remains of our provisions. We were very tired, and wrapped ourselves up in the quilts the old Japanese brought us and slept for an hour.

When we awoke the clouds were rushing past the summit in great ragged patches. From the stone wall in front of the huts we saw the beautiful green world of Japan stretching for miles and miles, valleys and mountain tops, and away to the east the enchanting coast line and a gray-blue sea. Just below us was Yamanaka in its emerald green basin, and to the east lovely Hakone Lake, not a ripple disturbing its mirror-like bosom, and beyond the tiny islet of Enoshima in a setting as exquisite as any in the Never-Never Land. Off to the north we could see the smoky summit of Assmayama, 100 miles away, and beyond the rocky range of the Japanese Alps.

We traversed the length of the row of huts and went beyond to the summit's edge, where pilgrims have erected heaps of small stones to the memory of those pilgrims who were caught in a blizzard many years ago. In the vicinity one can see places where the steam escapes from the hot rocks. We walked over and looked down into the crater, which is 600 feet deep. Its sides are streaked with red and purple and green, and on the south side is a long patch of snow, which is the nearest approach to a snow field on the mountain. The distance across the crater is about half a mile. We made the circuit of the crater, which was an entirely useless undertaking, as the western slope of the mountain was shrouded in a dense cloud, and we saw nothing of this, the most beautiful region near Fuji. We stopped at the various shrines and followed the example of the pilgrims and bought post cards and fans stamped with Fuji's mark.

At eleven o'clock we began the descent behind a long line of pilgrims. The descending path was through deep ashes most of the way, and Pool and I made rapid progress because of our leather shoes. The pilgrims were obliged to stop every few hundred feet and mend their cotton shoes and straw sandals, which made their return trip quite as arduous as the ascent. They made no attempt to conceal their envy as we came bounding past them through clouds of dust. The whole length of the path was strewn with worn-out straw sandals. We should have made even better time only that our guide, like the pilgrims, had to stop often to mend his shoes, and as he had our belongings on his back we did not care to let him get too far behind us. When we reached the bottom the heat became most trying and we were thankful that we had taken the advice of the "boy san" at the Cherry Mount and provided ourselves with pil-

grim hats. We should certainly have suffered from "Japanese head" but for them.

We reached Subashiri at 3:30 o'clock, only to find that no tram cars would leave there before six, and all of the cars in the station were filled with waiting pilgrims. We therefore decided to go on to Gotemba. Pool waited to hire a horse while I went on afoot. We arrived there just at six o'clock. I stretched myself on a bench in the station and refused to move until the train came at eight. I thought then that I had had about all the mountain climbing I wanted. At eleven o'clock at Haranuma station in Yokohama two weary, sunburnt and dirty "foreign pilgrims" might have been seen making their way around the crowd of fashionables returning from Miyanoshita. If any one had been interested in their movements he would have seen that the two near-tramps got into rickshas. If they had been asked these same individuals would have said they were going to the Cherry Mount Hotel to a square meal and much needed sleep.

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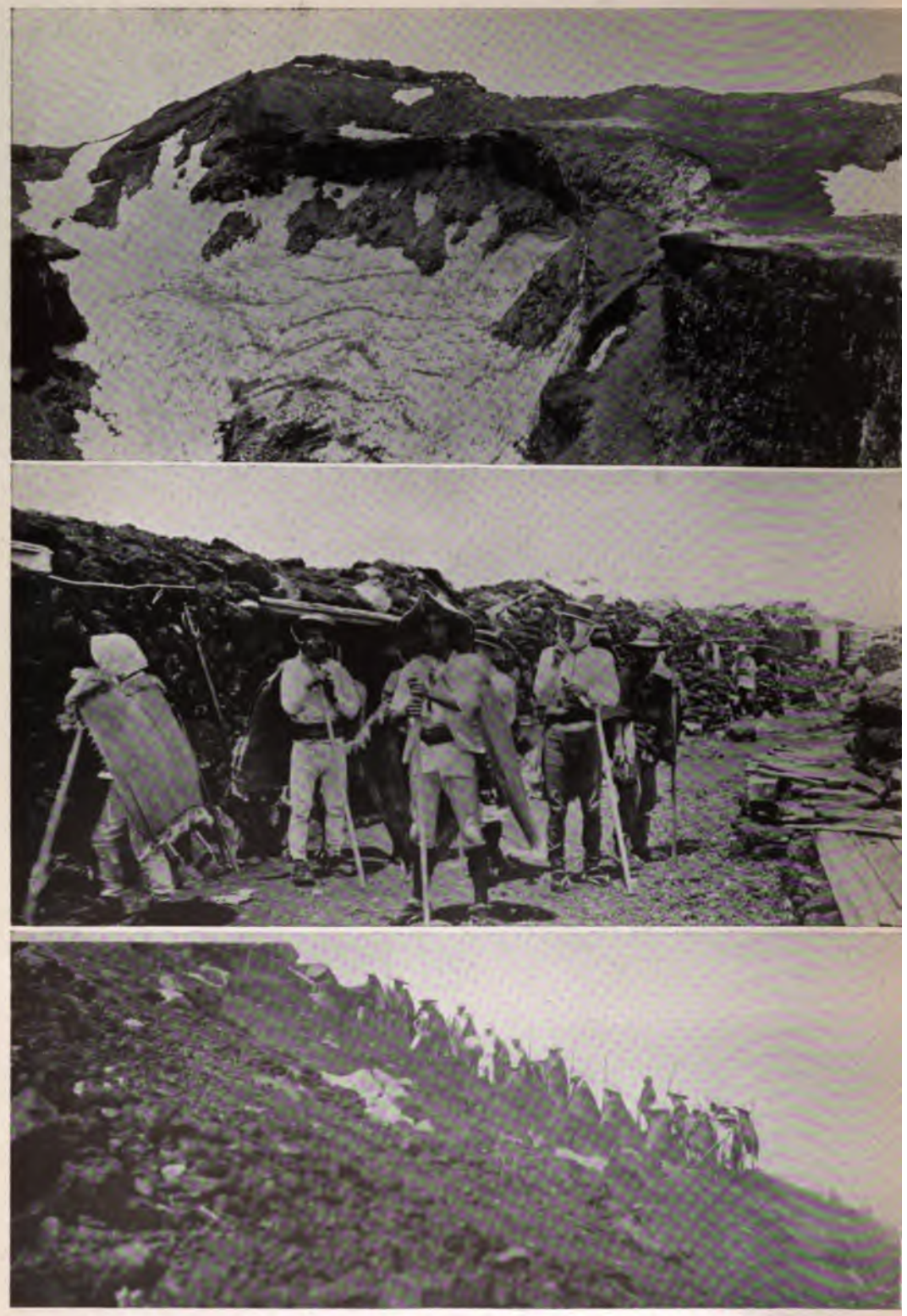
Entrance Oregon Caves and Elijah Davidson, Discoverer.

Limestone Formations in Oregon Caves.

Summit of Fuji.
Lake Hakone from Fuji.

Disintegrated Lava on Slope of Fuji.
Pilgrims Receiving Credentials at Shrine on Summit of Fuji.



Top—Crater of Fujiyama, Sacred Mountain of Japan. Middle--Pilgrims on Summit of Fuji.
Bottom—Pilgrims Climbing Fuji.

The Oregon Caves.

By Mary Henthorne.

As guests of the hospitable Commercial Club of Grants Pass a party of 120 Mazamas—hardy outdoor enthusiasts of Portland—recently enjoyed a three days' outing and exploring expedition through the foothills of Josephine County, with the Marble Halls of Oregon as their goal. These halls are neither a dancing place nor a political rendezvous. They are a network of marvelous caves, surpassed nowhere in beauty or intricacy, and only by the famous Mammoth Cave of Kentucky in extent.

When the party set out from Grants Pass they found weather and roads ideal. The forty automobiles provided by their hosts made the journey of twenty miles through the far-famed Rogue River Valley in something less than three hours, the sun-kissed mountains of California making a fitting border to their route along the south, while the wooded hills of Oregon marshaled stately ranks from all other directions in welcome to the visitors.

At Stevens ranch, where road gave place to trail, steam and gasoline gave place to human muscle. Their camp outfit having preceded on pack horses, the Mazamas "hiked" along the easy trail some ten miles to a point near the door of the halls they had come to see. A bountiful supper awaited them, and they pitched their camp for the night.

When "the first gray of morning stole into the tent" they awoke to view old Grayback Mountain, whose jagged sides had lodged them, and to revel in the invigorating air which, with its oddly stimulating languor and its faint quivering in the sunlight, seemed to savor more of California than of Oregon. Solemn old Grayback, its summit boasting some 7,000 feet, rose about a third its height above the camp. Near its base where it towered from the lower hills was discerned a small dark hole, not large enough to be entered without stooping.

Breakfast hastily dispatched, the party assembled at this small hole, which for all its modesty was the gateway to the wondrous Marble Halls. Armed with lighted candles and headed by skillful guides the party crept through, single file, like so many busy ants entering their underground abode.

After traversing a short corridor a broad cavern opened to their

gaze, and as their eyes became accustomed to the darkness, but slightly routed by their candles, and their eager feet hurried through the gloom they perceived another and another, and still others—an endless succession of caverns with odd little hallways winding along between.

The exclamations of wonder multiplied with their progress as marble tapestried walls or ranks of fluted columns met their gaze. Questions rained upon the guides like hail. "What's this room called? What makes it so smooth? Why is it so rough? What makes these stalactites so big and those so little? Doesn't it give you a creepy feeling to be in here? Listen to the echoes! What makes it look like flowers on the walls? Does the water always fall in drops like that? How deep is this pit? Can't they find out by dropping a rope into it? Doesn't anything live in here besides bats? Why is it gray in some places and white in others? Who discovered these caves?" etc.

The obliging guides answered as many of these questions as their tongues had time for, and the visitors, using eyes and ears together, added largely to their knowledge of a new specimen of nature's handiwork; for while the Mazamas' specialty is mountain tops, still they could not fail to develop a lively interest in inverted summits when nature so bountifully provided the show and a kindly club played host.

The caves, they learned, were discovered in 1874 by Mr. Elijah Davidson while pursuing a bear that suddenly disappeared into the bowels of the earth. Mr. Davidson was a man of curiosity as well as courage, and being unwilling to believe that his bear had miraculously vanished, followed into its retreat. He spread the news of his unexpected find, and now the fame of his caverns has extended far and wide. Mr. C. B. Watson, of Ashland, appreciating the value of the caves, recently induced the Oregon Conservation Commission to have the district containing them set aside as a government reserve.

While the guides were telling all this they led from one odd chamber to another. There was the White Room, whose walls gleamed pure and spotless in the flickering candle light. Narrow passages where all must bend low to escape a roof bristling with stalactites led into the Dome, the Pit, the Drapery Room, the Queen's Palace, the Owls' Nest and many others. At length came a chamber peopled with rows of glistening columns, the stalactites stooping from above having embraced their stalagmitic sisters who reached eagerly up to meet them. The regularity of the columns and their white marble stateliness, and the odd solemnity of the place, which made the visitors speak in softened tones, seemed in harmony with its

name as the guides announced that this was Joaquin Miller's Chapel, named in honor of the gentle poet of the Sierras, whose keen insight had perceived its likeness to a holy place.

Next the Organ Loft excited wonder. Tall rows of columns stood in regular array like the pipes of an immense organ. The guides tapped them and they responded with a weird reverberating hymn.

There was a triangular room called the Bee Hive, which, while no doubt bees would shrink from its damp gloom, would seemingly offer them a very choice place of residence, since honeycombs ready made decorated all the ceiling and the walls. Perhaps these were a trifle harder than those in ordinary hives and somewhat larger, but surely the fastidious bees, notoriously tidy housekeepers, would be delighted at their spotless purity.

Some of the Mazamas were so full of the lust for exploration that they could scarcely restrain their ardor sufficiently to follow the guides. They wished to hurry on ahead along dark passages that promised untold glories. The guides warned them, however, that these alluring corridors frequently led only to blank stone walls or tapered to tiny holes too small to wriggle through.

From every stalactite hung a tiny drop of water. In some places the drops fell in quick succession. The floors were often damp and there were a few small pools. The visitors were glad to have worn their roughest outing apparel, as crawling on hands and knees through jagged passages, climbing the Golden Stairs on steps of wet powdery limestone, reclining occasionally on a tempting shelf where gigantic crystalline flowers bloomed perpetually above, while all the time the diligent little water drops baptised them, made denim garments and stout high boots luxurious.

After a morning spent in seeing as much as could be crowded in, with innumerable avenues yet unvisited, the party returned to the outside world to lunch by daylight, and then re-entered the caves at the lower mouth some 75 feet farther down the mountain side. As far as known there are no other mouths to the caves, though the guides explained that there probably were several others at points not yet discovered. The fact that the air is always fresh within the caves, and in places blows with a strong draft, leads to this supposition. The guides maintained that even on the hottest days or the coldest the temperature inside the caves remained the same, hovering about 60 degrees.

The formation in the lower level was found to be bolder, bigger and more daring than that above, where delicate incrustations wove

fairy laces and myriads of dainty flowerets. Here were sharper outlines, vaster chambers, larger columns, bigger and more irregular ramifying corridors. There were vertical passages connecting the two levels, through which some of the party climbed up and down from one floor to the other. They declared that they discerned four distinct levels in the caves, but this could not be verified in the short time at hand.

Among the party was a gentleman who seemed especially interested in underground creations and had visited practically all of the best known caves in this country and abroad. He made many interesting comparisons. The caves of Oregon, he said, are larger than any others yet discovered with the exception of the Mammoth Cave in Kentucky. That is, they are greater in extent; there are several caves whose individual chambers are more ample. They are also damper, with more water dropping from their roofs, although they have no rivers running through them, as is the case in Mammoth Cave and others. There is more of the pure transparency and unclouded whiteness in the limestone incrustations here than elsewhere, though occasionally this is dimmed to a cloudy gray or brown.

When questioned as to the probable history of the Marble Halls the gentleman replied that their creation was brought about by the same forces that had been at work in Kentucky and other limestone regions—kenetic or motion forces and a bit of that boundless chemical activity that is going on unceasingly in the immense laboratory of the earth. The fracture and dislocation of calcareous or limestone strata during periods of upheaval left crevices or faults, though which water could penetrate. The water became laden with carbon dioxide and humic acid or other dissolving elements, and passing along these natural highways disintegrated the limestone and swept it away, leaving empty rooms and hollow tubes walled in by the harder substances.

Leaving the caves reluctantly late in the afternoon the Mazamas spent another night at the base of old Grayback, returned on foot the next day to their waiting automobiles and motored luxuriously back to Grants Pass. Here the hospitable thoughtfulness of their hosts was still evinced by a multitude of pleasant courtesies, and the travelers returned to Portland on their special train that night feeling pride in the caverns whose marvels they had seen, no less than in the cordial friendliness of the citizens of Grants Pass, whose kindly spirit had made their visit possible and so eminently successful.

Caves.

By C. Barck.

Since time immemorial caves have aroused the curiosity and invited the imagination of mankind. They have found their place in the tales of all nations and of all times. Inhabited by wild animals, they have moreover been peopled with fabulous monsters. Probably the best known of such legends is that of the Greek hero Theseus, who entered a large cave on the Island of Crete, the labyrinth, and there killed the terrible Minotaur. He found his way back by means of a thread which he had fastened at the entrance. This cord, together with the respective advice, had been given to him by Ariadne, daughter of the king of Crete. The old rule still holds good today; whoever wishes to explore caves or unknown regions of old ones must take precautions to find his way back. Negligence in this respect has cost many a life even centuries after Ariadne's reign.

In spite of the role which caves play in fables they have rather been a step-child of the science of geology. Special treatises on this subject are rare indeed, and a comprehensive work, to my knowledge, does not exist.

According to Webster there is no difference between a cavern and a cave. He defines both as "a hollow place in the earth." But I believe that people usually make a distinction between the two in reference to size, regarding a cavern as a small cave. It would certainly be wise scientifically to attach different meanings to the two words. Possibly the best principle for division would be the amount of light that enters. In a cavern there is more or less light; a cave is absolutely dark. The contents of my remarks will refer mainly to the latter.

The simplest cause of the formation of a cave is the rending of the rocks by the mountain-building forces, where the walls on either side of the break—the fault—have been pulled apart from each other. Such a disturbance produces very deep and long but relatively narrow fissures. It may of course take place in sedimentary as well as in igneous rocks. Very large caves attributable to this cause are, however, not known. If we set such cave-like fissures apart, caves may best be divided into two large groups, according to the geological formation in which they occur: caves in sedimentary rocks and those in igneous rocks. These two categories differ according to their mode of origin as well as to their general aspect and features. This division is therefore also a practical one.

CAVES IN SEDIMENTARY ROCKS; LIMESTONE CAVES.

Caves are found in any of the different sedimentary rocks. They are due to erosion, most frequently produced by the mechanical action of water; inland by rain, rivers, etc., on coasts by the waves of the ocean. But the mechanical action works slowly, and therefore the excavations in sandstone and similar rocks are relatively small.

There is, however, one sedimentary rock which makes an exception in so far as it is affected by water not only mechanically but also chemically. This is limestone. Pure water, it is true, does not possess the property of dissolving limestone. But when rain water falls upon decaying vegetation and passes through this bed of oxidizing carbon it gathers carbonic acid (carbon dioxide) into itself. So charged it acquires the power to attack the limestone, because the absorbed gas gives the water a singular capacity for taking into solution a large amount of lime (also some iron and other mineral substances). Therefore if such water comes in contact with limestone it dissolves it slowly or rapidly, as the case may be; afterwards the water proceeds on its way with the mineral burden. By this process a region once level becomes undulating; the surface waters find or make underground channels and finally the region is honeycombed with caverns. At first, while the crevices are narrow, the excavation is done altogether by the dissolving action of the water; but when it has excavated a channel sufficiently large to permit a stream to flow, then the speed of the current increases the mechanical power of the water. The largest and most famous caves of the world are all found in limestone; and as limestone covers a large area of all continents they are lacking nowhere.

The most extensive cave region on the globe is located in our country, in the territory of the lower Ohio River. This river divides the area in such a manner that three-fourths of it lies in Kentucky, while the remaining one-fourth is divided between Indiana and Tennessee. The formation is carboniferous limestone, which has been deposited homogeneously and has remained almost entirely undisturbed. These are two important factors in the creation of very large caves. Where the layers have been upheaved and shaken, so that cracks and fissures are formed, a large number of small grottoes will result, as for instance in the limestone of Virginia.

In the above mentioned cave region in Kentucky we find the largest of all known caves, the famous Mammoth Cave. Long before you approach it you will note a certain peculiarity of the landscape, namely, the absence of all surface streams. For all the rain water that falls is carried down through sinkholes into caverns below. These sinkholes are usually round or oval depressions of every conceivable size and of varying depths; they have no inlet or outlet except through funnels which communicate with subterranean passages. There are thousands and thousands of such sinkholes in the region; they are natural animal traps, and for that reason quite a number of them have been artificially blocked. The water which runs in the subterranean passages is finally collected in a few streams, of which the Green River is the most conspicuous.

The thickness of the limestone in the Mammoth Cave region from the surface to the bottom at the present time is about 400 feet. The Green River emerges as a large stream several miles east and 400 feet below the Mammoth Cave Hotel. Throughout the entire thickness of the rock you find a labyrinth of channels—long winding avenues, small grottoes, domes, large halls measuring up to 150 feet in height and hundreds of feet in length. They are located at different levels, most of them united by steep and intricate passages; a visit of the cave necessitates

constant climbing up and down. In the portion which is explored at the time there are more than 200 miles of paths. At the bottom you find the water in form of rivers, of which, however, portions only are accessible. The largest is the "Echo River," which is partly navigable for a mile or so. In these waters eyeless fish, crayfish and other aquatic inhabitants are found. Corresponding to the sinkholes on the surface of the earth there are vertical funnels several feet in diameter and more than a hundred feet deep, which are termed "pits," inside the cave. In a number of them waterfalls are encountered, the volume of which varies with the seasons.

The space of this sketch is of course too short to give a more minute description of Mammoth Cave. I will mention only one more feature which we find in this as well as all limestone caves, namely, the formation of stalactites and stalagmites.

We have seen that the water is charged with the limestone, etc., it has dissolved. Suppose there is some water on top of the roof of a cavern which oozes down through narrow interstices drop by drop. Then some of these drops will fall to the floor of the cavern, while others will cling to the roof. From these the water will evaporate and the substances, which have been dissolved in it, will crystallize. In this way a slender pendant-like body begins to form on the ceiling, which grows with varying speed downward. For a rapid process of evaporation a current of air is essential, and therefore we find the largest stalactites at places where there is a constant draught. The drops which fall undergo the same commutation on the floor, and there the firm substances crystallize in a conical heap, which grows upward to meet the corresponding descending cone. The most simple or schematic form of a stalactite and stalagmite would be two cones, which are united at their apices. Such a regular form is of course rarely found; it presupposes that the respective surfaces of ceiling and floor are level, and furthermore that the supply as well as evaporation of water is uniform. Nevertheless one of this type is found in Mammoth Cave. If the water oozes not only through one but through a number of fissures and in varying amounts the most fantastic shapes of stalactites and stalagmites result, which have been named according to their resemblance to different objects, such as "The Armchair," "The Organ," "The Altar," "The Elephant's Head," etc. The finest stalactites of the Kentucky region are found in the "White Cave." This adjoins and is in reality only a portion of Mammoth Cave. But it has a separate entrance, so that the company which owns the property gets a double admission fee from the visitors. Many other features connected with the management of this great natural wonder leave much to be desired, and it is to be hoped that Mammoth Cave will also be made a national park.

As the limestone region is not limited to the Ohio Valley, but extends farther west beyond the Mississippi, we find caves in Indiana, Missouri and Southern Illinois. These, however, are not as large, because the strata of the rock are not as uniform and have undergone subsequent displacements. Of limestone caverns in the mountain regions of the west, let me briefly mention two, which I have visited. The one is situated near Manitou, Colorado, and contains a few beautiful stalactites. The

other is in the Grand Canyon of the Colorado River, on the "Grand View" or "Berry's" trail, about 2500 feet below the rim.

In Europe, there is an area very similar to the Kentucky region described. It is located in the southernmost portion of Austria, near Triest, and is called "Krain." The name for sinkholes there is "Dolinen"; they are even more numerous than in the Ohio limestone. Here is found the largest of European caves, that of "Adelsberg." While the extent of the Adelsberg cave is only about one-fourth of the Mammoth cave, it contains more, and amongst them the most beautiful stalactites known.

CAVES IN IGNEOUS ROCKS; LAVA CAVES.

While water is the most efficient agent for cave formation in sedimentary rocks, it plays no role whatever in igneous caves. For these entirely different factors are responsible. Caves in granite and other primary rocks are rare, and we will first dwell upon the numerous lava caves and revert to the former later on.

All lava caves are formed at the time when the lava is still in a molten state, and shortly before it hardens by cooling. In order to comprehend this process, it is necessary to recollect that all lavas contain large amounts of different gases; these are liberated during the process of contraction and their expansive force is a considerable one.

According to their genesis, we may divide lava caves into three groups. Those of the first group are created at the end of an eruption; the semi-liquid magma is prevented from collapsing entirely by the pressure of the mentioned gases, and solidifies in a most irregular manner. A typical example of this kind is the famous "Blue Grotto" on the island of Capri near Naples. It can only be entered by sea and when the latter is perfectly calm, because the rocky arch which forms the entrance is very low. The beautiful and magical color effects are due to the entry of light through a small fissure in the ceiling and its refraction within the grotto.

The other two groups occur in former lava streams. If a lava stream flows down a mountain side the surface cools very rapidly, hardens and becomes solid; while the mass beneath is still in a liquid state. Such a condition may be found anywhere on active volcanoes. Some years ago I stood upon the hardened but still hot roof of a flowing lava stream on the flanks of Mt. Vesuvius. This hardening of the surface progresses until the roof is strong enough to support itself; it may then happen that the lower fluid lava flows on, leaving an arch which spans the cavity it occupied. Thus a long avenue-like cave is formed, the diameter of which may vary between several and as many as 50 feet. The arch in such instances is a more or less crude oval.

The third kind is produced in the following manner: Let us imagine a broad lava stream which has nearly exhausted its force and is in consequence in a viscid (honey-like) state. If it now meets a nearly vertical declivity perpendicular to its course the lava will not flow down vertically, but on account of its sticky condition will flow over it in such a way that there is a hollow space left between the rock and the lava. This will present a steep wall on the one side and half an arch on the other.

It goes without saying that caves of the former group run in the direction of the lava flow, while the latter run perpendicular to it.

Lava caves are found in all volcanic regions. Some of them are several miles in length. Possibly the most famous one is the "Fingal" cavern on the Island Staffa in Scotland, noted for its beautiful hexagonal columns of basalt. It is situated at ocean level, and the water enters it. Caves so situated are often called "wave caves"; and some authors maintain that this cavern, as well as the Blue Grotto, is exclusively due to wave action. This view is hardly tenable, however. Waves alone cannot excavate solid rock; some hollow space must pre-exist, and the waves can only increase and modify it by erosion.

Caves in granite have been formed in all probability in a manner similar to that of lava caves. Their walls are frequently covered with rock crystals, which has given rise to the name "crystal caves."

ICE FORMATION IN CAVES; FREEZING CAVERNS.

Let me first make a remark in regard to the terminology. The English word commonly used, "ice cave," as well as the German "eishoehle," conveys an inaccurate conception. If we say limestone or lava caverns it implies that the cavern is in limestone or lava respectively. An ice cave, therefore, literally means a cave in ice. Such cavities of small size are really found in glaciers, and artificial ones are hewn every summer in Switzerland; you can see them near Grindelwald, Scheidegg and many other places. Here the caves are in the ice; but in the cases under consideration the ice is in the cave. The most appropriate word is found in the French language, namely, "la glaciere," which is frequently used in geology. The English term "freezing caverns," which will be used throughout this article, has been introduced by E. S. Balch, to whom we owe the only exhaustive treatise on this subject; it appeared in 1900.

For twenty years prior to this date Mr. Balch made such caves the object of his researches and personally visited a large number of them in different parts of the world. He gives a list of about 300; but the data of many, being newspaper clippings, are very brief or inaccurate, while others refer to ice in deep wells, in tunnels, or to caves from which strong cold winds emerge. If we exclude these and consider only the more exact reports, from 150 to 200 freezing caverns are known today. Most of them, over 100, exist in Europe; they are found there in every country. The Jura mountain chain contains the relatively largest number of these, while others are found in the Carpathian mountains, Ural, Apennines, Norwegian, English and Scotch mountains. Twelve or such caverns are known in Asia and one in Japan. The number reported in the United States is about 30. Those in the Eastern and Middle states, New York, Vermont, Pennsylvania, Iowa, are relatively small; those in the West are larger. Two are known in northern California, one in Oregon, three in Alaska and one in Washington—the one we visited last summer. Nearly all freezing caverns are found in limestone or in lava; one, however, has been reported in marble. They generally occur in fairly high altitudes. All freezing caverns are situated in the latitude or at an altitude where ice and snow form for part of the year in the surrounding country. None are reported in India of Africa, or in fact

in any low-lying places in tropical latitudes. The only freezing cavern found in subtropical climate is "La Cueva de la Nieve," on the Island of Teneriffe; but this is located at an elevation of over ten thousand feet.

In order to understand this natural phenomenon it might be well to recall some familiar phenomena which are related to it. It is a well known fact that in deep gulches on the north side of mountains, where the sun's rays do not penetrate, layers of snow with firn and ice beneath remain throughout the summer. Under big boulders or in deep wells, mines and tunnels the same occurrence exists. One factor, the absence of direct sunlight, is common to all these. According to their position and general aspect Balch divides all freezing caverns into cliff caves and pit caves. In the former the entrance is at the side of a cliff, while in the latter there is an irregular vertical opening in the ground, through which you enter the cave. It is plain that the ones are found in sedimentary rock, the others in lava. The Mt. Adams cavern is a typical example of a pit cave.

The dimensions vary, but they are never very large. A diameter of fifty to a hundred feet seems to be the average size. The largest one known is the cave of "Dobsina," in the Carpathian Mountains, with a length of nearly 400 and a breadth of 200 feet.

The chief characteristics of the ice in the caverns are the same everywhere. The deepest part of the cavern is filled with solid ice, and the thickness of this is from a few inches up to several feet. Balch states that in the cave "De L'Haut-D'Arlemont," in the French Jura, he saw a crevasse, the icy walls of which were more than twenty feet in depth. The surface of the ice is sometimes level and in portions so smooth that you can skate upon it; while in others it is very rough and hilly, depending, of course, upon the configuration of the bottom. There is a difference in the forms between underground and overground ice. Almost all the lines of underground ice are rounded; the sharp angles and fractures visible on glaciers are absent because the factor of motion is practically wanting. Besides the ice floor, the most striking forms of subterranean ice are the icicles in shape of stalactites and stalagmites, which resemble to a great degree the limestone stalactites. Some of them are hollow in the center. The most beautiful ones are reported from the Jura caverns; but the ones we have seen in the Mt. Adams cave are a close second. The physical processes which control the formation of ice stalactites are similar to those which have been outlined for the lime stalactites.

All freezing caverns have a relatively large entrance, and the ice is never at a very great distance from it. In a number of the caverns the ice does not last during the entire summer; it is present during the earlier part of it and has disappeared by autumn, reforming again during the next winter. In others, where the mass of ice is larger and thicker, it is perennial, but its volume also decreases with the advancing warm season. Exact observations have been conducted in a number of European and also in a few American caves. They prove that the accumulation of ice is the greatest at the close of winter, in March or April, according to the latitude, and that it is the least at the beginning of winter. They show, furthermore, that the temperatures inside of the freezing

caverns are higher in summer than in winter. A comparison of the figures recorded proves that from about the first of November to the first of July they are below the freezing point, and that from the first of July to the first of November they are above freezing, and also that the temperatures within the caves vary considerably less than the outer temperatures. As an example let me quote (in condensed form) the temperatures recorded by the Geological Survey in the cave at Decorah, Iowa (temp. in Celsius):

Date.	Outside.	Inside.
July, 1897	+33	0
August	+32	0
September	+32	+8
October	+24	+8
November	+10	+5
December	—2	—2.1
January, 1898	—3	—2
February	0	—5
March	+5	—2
April	+20	—1
May	+17	0

In regard to the causes of subterranean ice various opinions have been advanced. The finds of ice in midsummer have naturally aroused curiosity, and some of the theories are rather far-fetched. Let me mention a few briefly. One of the oldest theories is that the ice in the caverns is a remnant of the glacial period. The simple fact that in many caves the ice disappears at the end of summer disposes of this theory. Another is that the ice is due to the presence of salt in the surrounding rocks. Experience, by letting lumps of the ice melt, give convincing proof that the water is exceedingly pure and sweet, without any saline contents. The natives and peasants in the neighborhood of freezing caverns in Europe, and also occasionally in our country, believe that the ice is formed in summer and melts in winter. This belief, as similar ones, is founded on imperfect observation; in winter they find the temperature warmer in the cave than outside, and in summer the reverse, and draw their erroneous conclusions from that. Furthermore, they rarely visit the caves in winter and make statements not based upon any observation. Other theories, like the one of "waves of heat and cold" or the "compressed air" theory, we may dismiss without further consideration.

After all that has been stated, the solution of the question seems to be a simple one. Two factors are certainly necessary to produce ice—the presence of water and a temperature at or below the freezing point. And these factors are just as essential inside as outside of a cave. There fore we find no freezing caverns in climates where the temperature never falls below the freezing point, as stated before. The ice forms in winter. The longer and the colder the winters the thicker the ice will be. The lowering of the temperature inside of the cavern will be helped by a number of factors. Through the opening an amount of snow falls into the cavity; the cold layers of air sink to the bottom, and if they

reach the cave by a larger entrance that region will be even colder than the air outside. This explains the fact that the ice is never found very far from the entrance, not any farther than the cold air can reach. The remote portions of a large cave are always warmer than the outside air. With the advancing winter the mass of ice and the stalactites increase, as found by all competent observers. The question is, therefore, not how the ice is formed, for it is formed exactly as anywhere else, but why it does not melt in summer.

In regard to this point we may say that these caverns are natural refrigerators. The paramount factor is, of course, the absolute exclusion of the sun's rays. This is partly achieved by the low level of the ice in reference to the entrance and partly by the sheltering wall of bushes and trees around the entrance, as is frequently the case. The position of the entrance is also of importance. In almost all cases it has a northerly exposure. For all these reasons the summer air, which is warm and light, can only enter the cave with great difficulty. The movements of the air, therefore, determine to a large degree whether and what volume of ice will form and how long it will remain during the warm season. They must act in such a way as to permit the cold air of winter to permeate the cave, and they must be retarded more or less in summer. Still, evaporation has frequently been considered as one of the causes of subterranean ice, and there is considerable dispute on this point even now.

Historically, let me add, the earliest reference to freezing caverns is an account of a visit to the cave "Chaux-les-Passavant" in 1584 by B. Poissenot, a French lawyer. The Mt. Adams cave is known since 1869 and was first described by R. W. Raymond in the Overland Monthly.

CAVES IN RELATION TO ANIMAL LIFE AND ANTHROPOLOGY.

Animal life is quite abundant in caverns and caves. Several hundred species of living inhabitants are known, by far the greater part of which belong to the group of articulated animals, insects and crustaceans. It seems that these are forms which by their structure are best suited for the peculiar changes of life underground. Comparing these creatures with their relatives in the outer world, we find that two changes are most manifest. The first is a change in color, namely, a decided tendency of all gaily colored forms to lose their hue in caves and to become of uniform color. The second is an organic change in the organs of sight. It has already been stated that in the Mammoth Cave blind fish are found. In these the eyes have entirely disappeared, and there is nothing but a small hollow left to designate the former place of the eyes. In the crustaceans we observe a certain gradation; in some they are still present, but in a more or less rudimentary state. Some species of cavern beetles are very interesting, where the males still possess eyes, while the females have lost them.

The air in caves is very dry and pure because there is almost no decomposing organic matter present. For this reason animal bodies left in the caves fail to decay; they dry up and are to a certain degree mummified. In the European caves an enormous amount of vertebrate fossils have been found, especially of beasts of prey. These differ somewhat

from their present day species, and therefore special names, as cave lion, cave hyena, cave bear, have been introduced. Strange to say, in American caves only a relatively small number of bones have been discovered.

Caves were not only the abodes of animals; they were without doubt the very first habitats of primeval man. They were the first homes, built by nature; before man was able to construct abodes they afforded him a natural and in many respects a satisfactory abiding place. The small entrance could be defended to advantage; the recesses, difficult to discover, afforded hiding places of safety. Later on, throughout all history up to the present time, caves have served as places of refuge in time of war as well as during political and religious persecutions. In the old world caverns appear to have been much more commonly occupied as dwelling places than in the new, and even to this day they are used in civilized communities, particularly in southern France. In North America they have been used as dwellings only by the aborigines, to whom the name "Cave Dwellers" has been given. The largest of these, as far as I know, are situated in the lava region of the San Francisco Mountains in Arizona. Several years ago I visited some of them and collected a large amount of pottery. This is very similar to the earthenware of the "Cliff Dwellers," and these two races were no doubt closely related.

Within the last decade renewed interest in caves has been taken by anthropologists, because in them the remains of the earliest prehistoric men have been discovered, and also their first crude attempts at drawing, painting and sculpture.

The Mountaineers' Outing in the Olympics.

JOHN A. LEE.

Strange as it may seem, one of the most attractive mountain regions on the continent, and one of the most conspicuous in point of location, has been almost the least explored. Girt on three sides by navigable waters, upon which at no hour of the day or night a ship may not be seen, and looking down upon cities having an aggregate population of more than half a million, the Olympic mountains, previous to the summer of 1913, had been penetrated by few and had been traversed by no considerable party.

Mt. Olympus, the highest peak of the range and a prominent landmark for ships entering the straits of Juan de Fuca, was named by Captain John Meares, an English navigator, as early as 1788. In 1889-1890 the Press Exploring Expedition (sent out by the Seattle Press at the suggestion of Governor Elisha P. Ferry and led by James H. Christie) explored some of the more rugged sections, going in by way of the Elwha river, and named several of the higher peaks. In 1907 the Mountaineers made memorable the first year of their existence as a club by conducting a considerable party over the same route, building a new trail along the upper reaches of the Elwha, and scaling most of the peaks that encircle Elwha Basin. Several of the party made a successful ascent of Mt. Olympus. March 2d of the same year the National Government took account of the Olympic Peninsula by establishing over most of it the Olympic Forest Reserve, followed just two years later by the proclamation of President Roosevelt creating the Olympic National Monument. The latter is a reserve of more restricted limits in the wildest part of the Olympics, the purpose of which is to afford protection to the elk. Mt. Elinor and Mt. Constance, being fairly accessible by reason of their proximity to Hoods Canal, have been not infrequently climbed.

But to nearly all, even of the most ardent and adventurous of mountain lovers, the Olympics have long remained a terra incognita, a region of mystery, whose beetling crags and snow-capped summits, whose singing streams and thundering glaciers, whose heather-carpeted parks and flower-bespangled meadows, whose forest slopes where the lordly elk roamed undisturbed, were visited only in imagination.

Little wonder is it then that the writer, upon receiving the very attractive prospectus issued by the Mountaineers' Club, announcing that they proposed this year not only to penetrate but to pass clear through the very heart of the Olympics, determined to be a member of the party. Stirred by the same impulse, among the Mazamas were R. L. Glisan, R. W. Montague and Jack Montague; Mr. and Mrs. Edward T. Parsons of the Sierra Club, whose charming presence the Mazamas have enjoyed in many a camp; and Percival Sayward, a mountain enthusiast from far-away Boston. These, with a good round hundred of Mountaineer members and others from the cities on Puget Sound (almost equally divided as to sex), made up the party. Many of those who applied for membership in the outing had to be refused because of limited pack-train accommodations.

L. A. Nelson, affectionately referred to as the "Little Big Chief," small in stature but a giant as a general, was the leader of the party, ably assisted by George E. Wright and Chas. Albertson. This committee had labored strenuously for two years in scouting out the route of travel and in making trail. More than twenty-five miles of absolutely new trail had to be constructed; though in this the elk, themselves no mean civil engineers, had done the pioneering.

"Big Chief Meany" (Prof. Edmond S. Meany), the genial president of the Mountaineers, presided over the camp fires, and in the course of the outing delivered several very instructive talks on the history of the region. Miss Lulu Nettleton and Mrs. H. B. Hinman assisted the uninitiated among the ladies in making themselves comfortable in camp. P. M. McGregor was the van leader on the climbs, and A. H. Denman the official photographer. George Russell was chef, and Tom Shively his capable assistant. Grant Humes was chief packer, and, what is most rare in a packer, combined the quality of efficiency with those of being humane and not profane. J. T. Hazard was chairman of the committee on entertainment. Dr. F. W. Greiner attended to the physical ailments of the party, and Rev. Hugh E. Brown looked after their spiritual needs in a manner that made all feel that "the groves," in truth, "were God's first temples."

On the evening of August 1, 1913, the party embarked at Seattle on the good ship Sol Duc for Port Angeles. At the wharf there were the same leave takings and the same scurrying to get dunnage bags aboard with which Mazamas are familiar. Morning found us at our port of destination. After a hurried breakfast on shore, we were soon whisked in automobiles, which the citizens of Port Angeles had considerately provided, over eleven miles of road to the beginning of the trail at Elwha Bridge. Our route lay along the Elwha and permanent

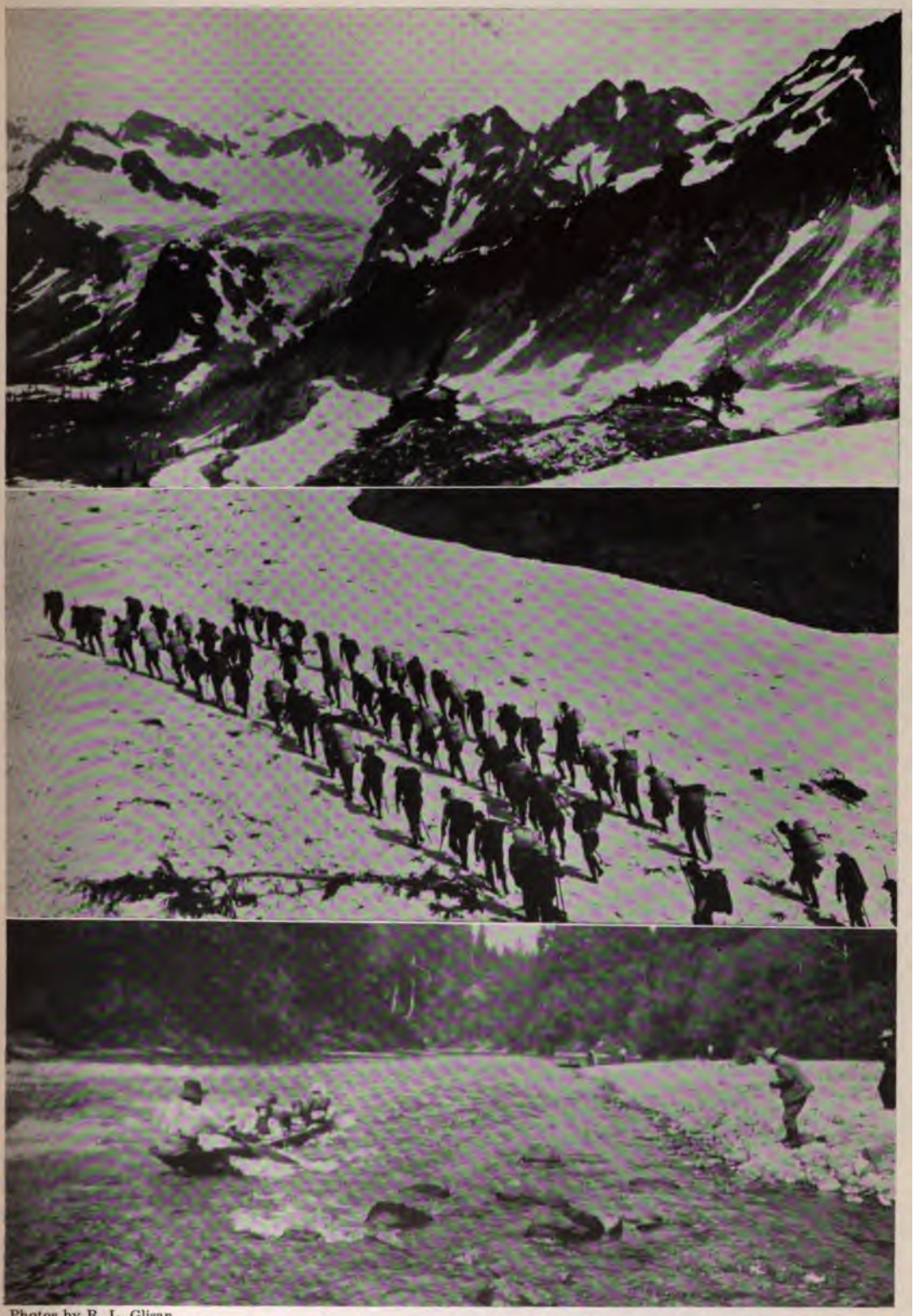
camp was to be in Queets Basin, some forty miles distant, in easy striking distance of Mt. Olympus. The itinerary provided for four intermediate camps.

This tramp up the swiftly flowing Elwha was a most delightful one. The weather was favorable and the trail excellent. While there were a few jutting ridges that had to be surmounted and occasional open stretches where the rays of an August sun were too warm for comfort, the trail for the most part wound through beautiful parks and ascended with easy grade. With an interval of never more than ten miles between camps, the slowest travelers of the party could always get in before nightfall, and so all were enabled to cut boughs for beds and construct a comfortable camp. Time was found also for fishing and bathing. The fishing in the Elwha proved somewhat disappointing, as the season was a late one and the stream high. Mr. Parsons made the prize catch, a rainbow trout that *he says* would weigh three pounds.

The writer will never forget the first night's camp, at Humes Ranch, for it was here that he came into most horrible disgrace. He had left camp ahead of the party the morning before to enjoy a few hours fishing in the Agnes, and reached the next camp late. There Glisan, his camp mate, with most rueful countenance informed him that in weighing in that morning his (the writer's) dunnage bag was found to be full five pounds over weight. His feelings were only partially mollified upon being further informed that the committee, after sitting in solemn council over the offending bag and debating long and earnestly as to what should be done in the premises, finally passed it on his (Glisan's) assurance that it would not happen again. Needless to say, it didn't.

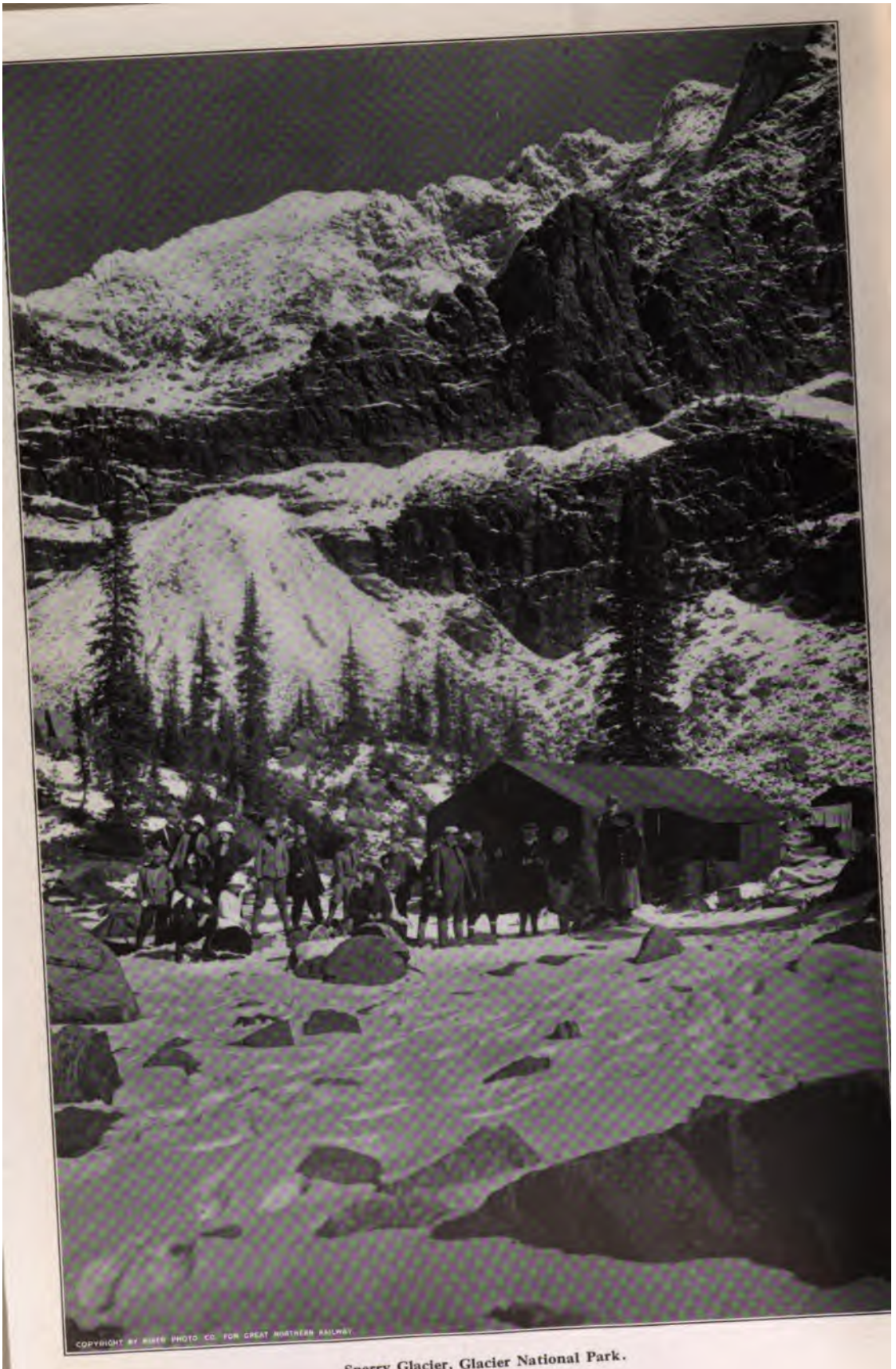
Elwha Basin was reached on schedule time, where it was decided to establish permanent camp, as the snow in Queets Basin, due to the belated season, would not permit of camping there as planned. Tents were soon pitched by those who had them, the commissary set up, and ere the sun disappeared behind the western rim of the Basin, all were comfortably settled on the identical site of the Mountaineers' camp of 1907. To several of the party it was like a home-coming.

Elwha Basin is a beautiful mountain meadow nestling at the very feet of Mt. Seattle and Mt. Noyes, which rise abruptly to the south. Mt. Meany and Mt. Queets are a little to the west, though not visible from the floor of the Basin, and still farther to the west and some eight miles distant is Mt. Olympus. Mt. Christie is six miles or so to the east. None of these peaks has an elevation of more than 8200 feet, but all carry living glaciers and are rugged and picturesque. One branch of the Elwha has its source within the Basin, while another,

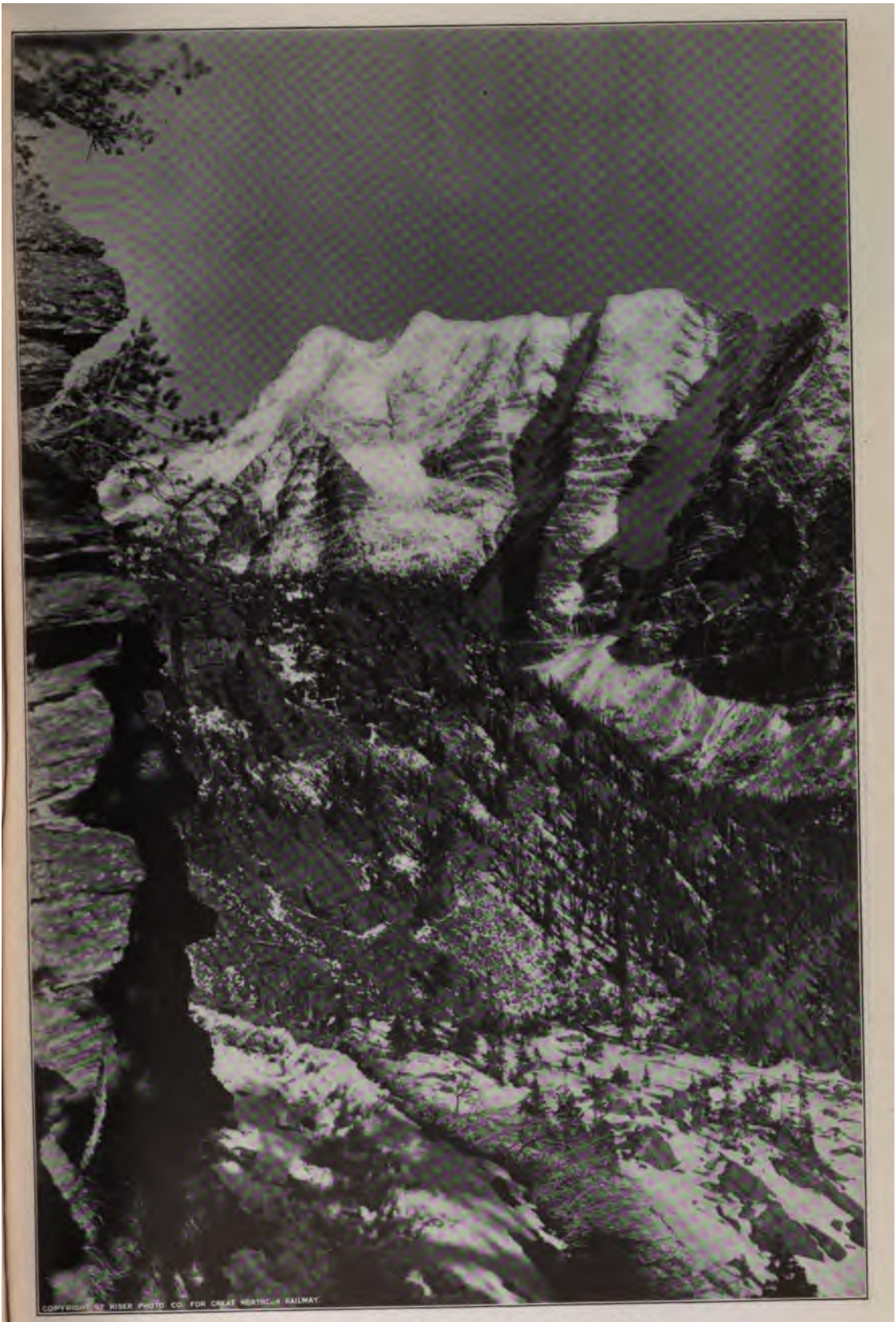


Photos by R. L. Glisan.

Top—Mount Olympus from Queets Basin. Middle—"The Mountaineers" in Dodwell-Rixon Pass.
Bottom—"The Mountaineers" Canoeing Down the Queniult River.



Sperry Glacier, Glacier National Park.



Mount Jackson, 10,023 Feet High, Glacier National Park.

Blackfoot Glacier, Glacier National Park.

rising in Dodwell-Rixon Pass a short distance to the west, skirts the Basin's northern marge.

Flowers were blooming everywhere. For the most part the same species were found as grow in the Cascades of northern Washington, but many were new to the writer. Erythroniums especially appeared to have found a congenial habitat, and were coming out in great profusion. In the Cascades heather is seldom seen below an elevation of 5,000 feet. Here both the white and purple varieties had crept down as low as 3,500.

Mt. Seattle was the first mountain ascended on the outing and served as a test to try out the mettle of the inexperienced. All who started made the summit, though Seattle as a climb is not to be despised, and presents enough difficulties to afford plenty of thrills.

Mt. Olympus was of course selected for the official climb. To make it, a knapsack trip of three days was necessary, with a two-night camp in Queets Basin, now sufficiently bare of snow to permit of camping. Seventy or more were successful in reaching the summit of Olympus and all without mishap, unless the drenching that many received from a hard rain the second night were to be mentioned.

The ascent of Olympus is a snow climb almost entirely and is not difficult, though somewhat fatiguing, especially if the snow be soft. Standing on the summit one looks out upon a splendid panorama. Resembling somewhat the view from Baker or Glacier Peak, it is even more impressive. Spread out in the foreground is the whole great area of the Olympics, ridge after ridge, and peak after peak, with a glimpse of the ocean and the straits of Fuca; while off in the background to the east the Cascades stand up serene, with their lofty sentinels in extended line.

Queets Basin is a gem, eclipsing Elwha Basin in point of beauty. Its floor is dotted with flowers of varied species and color, and is fragrant with heather, while there debouch into it from Humes Glacier and Queets Glacier on either side some of the finest ice falls the writer has ever seen.

Upon the return to main camp in Elwha Basin some others of the peaks were scaled by limited parties, including Mt. Meany, which is perhaps the most formidable peak in the range. Its summit is a pinnacle of rock of sharp declivity. Professor Meany, in honor of whom this peak was named by the Press Exploring Expedition, derived much satisfaction in being among those who accomplished the ascent, as he had never before stood on its summit. Glisan also was of this party, as were a few of the more daring climbers among the ladies. The "Little Big Chief" led the climb in person.

There being no more worlds to conquer in the vicinity of Elwha Basin, and the three weeks time allotted for the outing approaching its limit, the word was given to strike camp and begin the second main stage of the journey, the tramp through the Olympics to the sea.

Retracing our steps down the Elwha some four miles, we climbed the south wall of the canyon by the aid of a most excellent switchback trail constructed under the supervision of Grant Humes, and pitched camp in the Low Divide, just below two beautiful little lakes named Mary and Margaret. We were now on the watershed of the Queniult. A severe rain storm held us in camp for two days, though a goodly number climbed Mt. Christie and enjoyed some most excellent coasting. The writer will spare the feelings of certain individuals of the party by not attempting to describe the precise manner of their descent.

For two days we skirted the clear and tumbling waters of the Queniult (North Fork), following a trail that proved very trying to the pack horses. The second night's camp was dubbed "Two Prune Camp," for on that particular night the pack train failed to get in. Those who remained behind to unpack and carry the dunnage and commissary over a canyon too deep for the animals, in their exhausted condition, to bear their burdens, were rewarded by sleeping in warm blankets and enjoying ample fare, both of which the main party had not. All, however, bore the hardship cheerfully.

We now left the Queniult, which from this point on makes a wide bend, and climbing to the summit of the Queets-Queniult divide, followed this divide for two days, finally emerging at Lake Queniult, thus having followed the string of the bow formed by the river instead of the bow itself.

These last two days took us through some of the most beautiful scenery in all the Olympics. In this section are high mountain parks that rival any to be found in the Cascades. The forestation, unmarred by any burn, was a delight to behold, and an excellent though distant view was afforded of Mt. Olympus. While our main party came upon no elk either here or elsewhere on the trip, a herd of more than two hundred of these wary animals had been seen in one of the parks the day before we passed through it. The trail through this portion of the Olympics, excellent for the most part, was constructed under the direction of Herbert Olesen, a resident of the Queniult Valley, and as rugged and fine a type of the frontiersman and mountaineer as one will often meet.

After a camp of one night at Lake Queniult, a beautiful sheet of clear water, some four miles in diameter, set down in the midst of

the forest, and after celebrating the accomplishment of this much of our journey with a "circus" and a dance (the former much enjoyed by our aboriginal visitors), we embarked upon the final stage of the expedition. This was unique, to say the least, for a mountain-climbing party, and to many was the most enjoyable part of the whole trip—a ride of thirty-five miles in Indian canoes, manned by Indians, across the lake and down the Queniult through its many rapids to the Indian village of Tahola at the sea. Twenty-four canoes were required to transport the party, each with a native in bow and stern. The trout were jumping in dozens as we passed from the lake into the river, and the fishermen all regretted that time did not permit us to linger. It was such a day and such a setting as would make fit subject for the poet, but the writer has neither space nor ability to do it justice. Suffice it to say that all reached Tahola without upset or other unpleasant incident.

A camp of one night on the ocean beach at Tahola, where a dip in the surf was enjoyed, a tramp of eight miles down the coast to Moclips, in the course of which we witnessed the prize sea otter hunter of the Queniult tribe give an exhibition of handling his canoe in the surf, a ride by train to Seattle, and the journey was completed. Three hundred and sixty-five miles of distance had been covered, nearly a hundred of which were by mountain trail.

It was a herculean undertaking for the Mountaineers to plan and carry out such a trip, but its success more than repaid their efforts.

Mount Hood.

"A thousand times I've watched thy sunset glow,
Calm, cold, impassive, thou immortal pile;
Who holds thee mute knows not thy morning smile,
Nor ever heard thy streams' unceasing flow."

—C. H. Sholes.

Prospectus 1914.

The twenty-first annual outing of the Mazamas will be held next year in Mount Rainier National Park, Washington. Camp will be made on the northeast side of the mountain near the White River, Winthrop and Carbon glaciers. The route to the mountain is by train to Fairfax, Washington, thence by trail 22 miles to permanent camp. In all probability the outing will be held between the 1st and 20th of August, 1914. The details of the outing remain to be worked out by the Outing Committee. The outing will offer a rare opportunity to visit the largest and highest mountain in the United States outside of Alaska.

The Mazamas have twice before visited and climbed Mount Rainier—1897 and 1905—each time making camp in Paradise Park, on the south side of the mountain, the ascent being made by way of the hazardous Gibraltar route. This necessitated a bivouac camp at "Camp Muir." It is understood that the ascent from the north side of the mountain over the White River and Winthrop glaciers can be made quite as easily as the Gibraltar route, also opening up territory new to the Mazamas. We hope for a large attendance and successful outing. Members of other organizations and all other persons interested in the mountains and in out-of-doors are invited to join the party. We shall be glad to provide information in regard to the outing. Francis W. Benefiel, 110 East Twentieth street, is chairman of the Outing Committee. For information write him or any officer of the organization.

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What "Mazama" Stands For.

The word "Mazama" is derived from the name of the mountain goat which makes its home high up among the pinnacles and glaciers of the Cordilleran ranges of western America.

The Mazamas were organized on the summit of Mount Hood, Oregon, July 19, 1894, 193 persons (155 men and 38 women) reaching the top that day.

The purposes of the club are to explore mountains, to disseminate authoritative and scientific information concerning them and to encourage the preservation of the forests and other features of mountain scenery in their natural beauty.

Any person who has climbed to the summit of a snow peak on which there is at least one living glacier, and the top of which can not be reached by any other means than on foot, is eligible to membership.

Mazama Presidents and Official Ascents.

	Presidents.	Official Ascents.
1894	Will G. Steel	Mt. Hood, Oregon
1895	Will G. Steel	
	L. L. Hawkins	Mt. Adams, Washington
1896	C. H. Sholes	Mt. Mazama (named for Mazamas, 1896), Mt. McLoughlin (Pitt), Crater Lake, Ore.
1897	H. L. Pittock	Mt. Rainier, Washington
1898	Hon. M. C. George....	Mt. St. Helens, Washington
1899	Will G. Steel	Mt. Sahale (named by Mazamas, 1899), Lake Chelan, Washington
1900	T. Brooke White.....	Mt. Jefferson, Oregon
1901	Mark O'Neill	Mt. Hood, Oregon
1902	Mark O'Neill	Mt. Adams, Washington
1903	R. L. Glisan	Three Sisters, Oregon
1904	C. H. Sholes	Mt. Shasta, California
1905	Judge H. H. Northup..	Mt. Rainier, Washington
1906	C. H. Sholes	Mt. Baker (northeast side), Washington
1907	C. H. Sholes	Mt. Jefferson, Oregon
1908	C. H. Sholes	Mt. St. Helens, Washington
1909	M. W. Gorman	Mt. Baker (southwest side), and Shuksan, Washington
1910	John A. Lee	Three Sisters, Oregon
1911	H. H. Riddell	Glacier Peak, Lake Chelan, Washington
1912	Edmund P. Sheldon....	Mt. Hood, Oregon
1913	Edmund P. Sheldon	
	H. H. Prouty	Mt. Adams, Washington

Membership

This list is believed to contain the names of all members in good standing. Members are requested to report to the Financial Secretary any inaccuracy or change of address. There are many delinquent members, from whom the Executive Council should be pleased to receive new membership applications. The dues are three dollars ($3) a year; no entrance fee.

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Acton, Mrs. Harry W., 519 W. 121st St., New York.
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Adams, Dr. Claude W., 122½ Grand Ave.
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Bronaugh, J. E., Title and Trust Bldg.
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Coursen, Geraldine R., 658 Lovejoy St.
Coursen, Raymond E., 658 Lovejoy St.
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Ellis, Pearl, 52 Lucretia St.
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Parsons, E. T., 454-466 2d St., San Francisco.
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Pauer, John, 485 E. 20th St., N.
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Peterson, Laura H., 446 6th St.
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Pfaender, Freda, 171 E. 29th St., N.
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Riddell, H. H., Yeon Bldg.
Riddell, Morse, 415 E. 19th St., N.
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Sammons, Reta, 69 E. 18th St.
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Sheldon, E. P., 422 Halsey St.
Sheldon, Mrs. E. P., 422 Halsey St.
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Williams, John H., 938½ Pacific Ave., Tacoma, Wash.
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Young, Beatrice, 232 Stout St.

How to Get There.

(Note—No attempt is made to give the route to all the peaks in Oregon and Washington. The Mazamas feel sure, however, that information regarding routes to the better known ones will be appreciated by all who delight in climbing these monarchs of the Northwest.)

MOUNT HOOD.

The trip from Portland to Mount Hood is made by rail (Oregon-Washington Railway and Navigation Company from Union Station) or boat (The Dalles, Portland & Astoria Navigation Company from foot of Alder street) to Hood River, Ore. (66 miles), where automobiles are taken for Cloud Cap Inn. Fare to Hood River, by rail $1.90, by boat $1; auto fare Hood River to the inn, $5; round trip, Portland to inn and return, by rail $12.50, by boat $12. Board and room at Cloud Cap Inn $5 a day or $30 a week. Accommodations may be reserved at Travel Bureau, 69 Fifth street. To Government Camp, south side of Mount Hood (56 miles), the trip is made by electric cars to Boring, Oregon, and thence by automobile. Cars of the Portland Railway, Light and Power Company leave First and Alder streets for Boring (fare 40 cents), where they connect with automobiles (fare to Government Camp, $5). Board and room at Coalman's Government Camp Hotel $3 a day, or $18 a week. Guides for the ascent of Mount Hood, as well as for a variety of side trips, may be engaged at Cloud Cap Inn and Government Camp. For climbing parties the charge is $5 per member.

MOUNT ADAMS.

The trip to Mount Adams is by Spokane, Portland & Seattle ("North Bank") Railway from North Bank station or by boat (as above) to White Salmon, Wash., connecting with automobile or stage for Guler or Glenwood. Fare to White Salmon by rail, $2.25; round trip, $3.25; fare by boat, $1. White Salmon to Guler, $3. Board and room at Chris Guler's hotel at Guler P. O., near Trout Lake, $1.50 a day, or $9 a week. Similar rates to and at Glenwood. At either place guides and horses may be engaged for the mountain trails (15 miles to the snow line). Bargain in advance.

MOUNT ST. HELENS.

The south side of Mount St. Helens is reached by rail from Union station, Portland, to Yacolt (fare $1.30) or Woodland ($1), where conveyances may be had for Peterson's ranch on Lewis River. To the north side the best route is by rail to Castle Rock (fare $1.90) and by vehicle thence to Lange, near Spirit Lake. No camp outfit is needed, as the Lange homestead, the best starting point for the ascent, is an ideal stopping place.

MOUNT RAINIER (TACOMA).

Mount Rainier (Tacoma) is reached from Tacoma, Washington, via the Tacoma & Eastern Railway. The round trip fare from Tacoma to the mountain is $6. This includes railway transportation to Ashford and automobile-stage ride from Ashford to Longmire Springs and return. Tickets are good for the season. The summer excursion rate from Portland probably would be in the neighborhood of $12. Excellent hotel accommodations are to be had at Longmire Springs. For those pre-

ferring camp life there are camps established in Rainier National Park near the snow line, at which accommodations are to be had at a reasonable price. Guides and horses are to be had at both Longmire Springs and the camps in Paradise Park. For persons visiting the north side of the mountain, which is more inaccessible, the round-trip fare from Tacoma is $1.25. Guides and horses may be engaged at Fairfax for the 22-mile journey to the mountain.

GLACIER PEAK.

The trip to Glacier Peak, Washington, in the Lake Chelan district, is made by rail (Great Northern Railway) from Seattle to Wenatchee, thence by boat up the Columbia River to Chelan Falls, where a stage is taken for Lakeside. On Tuesdays and Saturdays Lake Chelan steamers leave Lakeside for Stehekin, at the head of the lake. Here, at Field's Hotel, horses, guides and a complete outfit may be obtained for the trip over the trail to Glacier Peak.

MOUNT SHASTA.

The ascent of Mount Shasta is made from Shasta Springs, which is in northern California on the main line of the Southern Pacific Railway. Open season is June 1st to September 30th. Rates at hotel $3 per day and up. Competent guides can be secured here throughout the season.

CRATER LAKE.

Crater Lake, in southern Oregon, is reached either through Klamath Falls or Medford via Southern Pacific Railway. From Klamath Falls the route is by launch to Pelican Bay Lodge, a distance of 33 miles, thence by auto stage 45 miles farther to the rim of the crater. The time required to make the trip is about nine hours. Through Medford one makes the trip direct to the lake by auto or by train via the Pacific & Eastern from Medford to Derby, a distance of 30 miles, thence by auto stage to the lake, 50 miles. Time required to make the trip about nine hours. The season is from July 1st to September 30th. Rates at the lake are $3.25 per day, or $17.50 per week. Round trip from Klamath Falls $20; round trip from Medford $15.

MOUNT JEFFERSON.

The trip to Mount Jefferson is made by rail to Detroit, Oregon, either via the Southern Pacific Railway or the Oregon Electric to Albany and thence via the Corvallis & Eastern to Detroit. From Detroit the mountain is reached by trail up the main fork of the Santiam River to Parmelia Lake, where there is an excellent camping place near the base of the mountain.

THREE SISTERS.

The Three Sisters may be reached from the west via the Oregon Electric or the Southern Pacific Railway to Eugene, thence by auto or stage 60 miles to McKenzie Bridge. A wagon road leads from this point to Lake Valley, a distance of 18 miles. Then five or six miles by trail brings one to the base of the Middle Sister. These peaks are even more accessible from the east side of the range. Take the O.-W. R. & N. and the Oregon Trunk to Redmond, Oregon. From here a good wagon road leads one to within a few miles of the base of the peaks. Mount Washington can also be easily reached by this same route.

DIAMOND PEAK.

To reach Diamond Peak one goes from Eugene, Oregon, over the Oregon & Eastern Railway (better known as the Natron cut-off) to Oak Ridge, thence by wagon road up the middle fork of the Willamette River to within a few miles of the mountain.

MOUNT McLOUGHLIN.

The route to Mount McLoughlin (Mount Pitt) leads through either Medford or Ashland, in southern Oregon. From either one of these points the trip may be made by wagon road to practically the base of the mountain.

MOUNT BAKER.

Mount Baker, Washington, is most accessible from Deming, on the Northern Pacific Railway. From Deming a wagon road leads seven or eight miles up the middle fork of the Nooksack River. From the end of the road a trail leads about 15 miles to Mazama Park, at the base of the southwest side of the mountain.

MOUNT SHUKSAN.

Mount Shuksan, lying northeast of Mount Baker, may be reached via Sedro-Woolley, on the Great Northern Railway, to Concrete, thence by trail up Baker River to the base of the peak.

EAGLE CAP.

The trip to Eagle Cap, in the Wallowa range, in Eastern Oregon, is made by rail to Enterprise, Oregon, and thence by trail up Hurricane Creek.

MAZAMA MAGAZINES WANTED.

The Mazama Council wishes to have at least one complete set of the Mazama magazines bound for the club library, and possibly more if missing numbers can be secured.

The numbers required to make up the complete set are Number 1 of Volume 1 and Number 3 of Volume 2. Any one who can supply these or knows where they can be found kindly notify the committee. Will exchange other numbers if desired.

It is also suggested to those who have old or extra copies which they do not especially care for, that they turn these in for the use of the club. All will appreciate the importance of having this work done now before it is too late, and are requested to lend all assistance possible.

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Volume IV DECEMBER, 1914 Number 3

MAZAMA

A Record of Mountaineering
in the Pacific Northwest

NESIKA KLATAWA SAHALE

PUBLISHED BY THE MAZAMAS
PORTLAND, OREGON, U. S. A.

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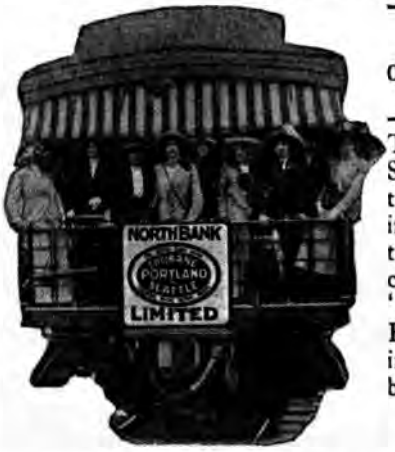

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MAZAMA

A Record of Mountaineering in the Pacific Northwest.

EDITED BY E. C. SAMMONS

Volume 4 | December, 1914 | Number 3

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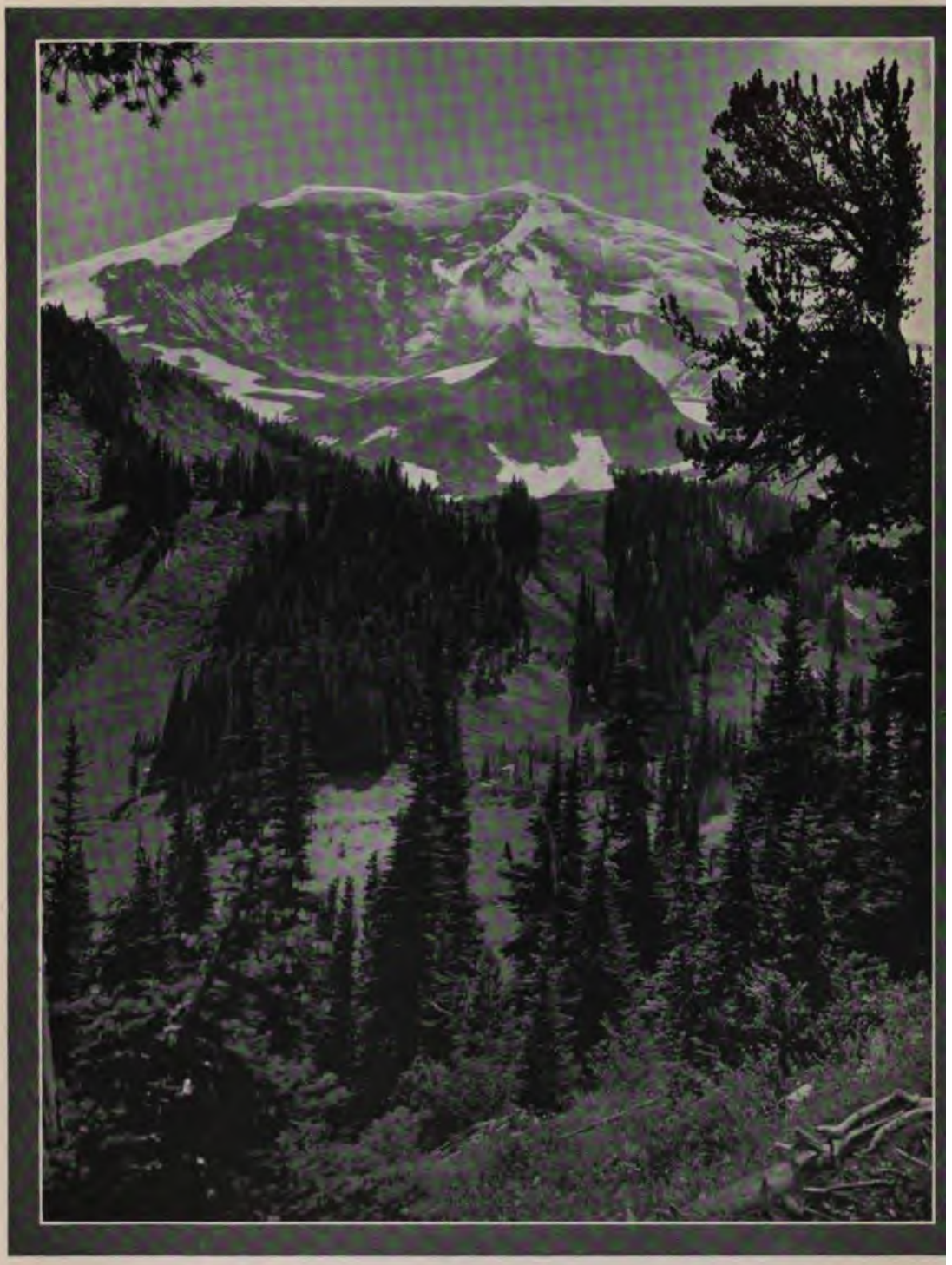

Photo by Kiser Photo Co., Portlan

Mount Rainier as viewed from Mazama Camp, Mystic Lake Park, August 1 to 17, 1914.

Mazama

Volume 4 PORTLAND, DECEMBER, 1914 Number 3

Mt. Rainier Outing, 1914

By J. E. BRONAUGH, Historian.

The history of an annual Mazama outing might well be written by one who *did not* accompany the expedition—from figures, maps and field notes—in order that the record should not be burdened with superlatives. How is it possible for any one who attended the Mazama outing on Mt. Rainier in 1914, in describing it, to avoid the use of such expressions as "The best ever," "The great unmatched," "The mountain that is, was and ever shall be God?" But from these extravagant praises one might be led to think Mazama affection is a fleeting, variable quantity, as one recalls with what enthusiasm, we recounted, in their turn, the superiorities of Camp Sheldon at Mt. Hood in '12, and of Camp Riley at Mt. Adams in '13. However, it may be said that each of these Meccas of our yearly pilgrimages has its own excelling individuality, and yet, when the outing of 1914 is viewed from every angle, what expedition in Mazama life is comparable to it?

It was planned and carried out with the precision of a German war campaign. With headquarters under the supervision of Mrs. Sheldon opened at the Multnomah Hotel a month in advance, registrations reached the flattering number of more than 100.

Ten days in advance, President H. H. Prouty, accompanied by those stalwarts, A. Boyd Williams and Geo. X. Riddell, went forward to spy out the land. Word came back that all was well, and on Saturday evening, August 1, at 11 P. M., in special Pullman cars, there rolled out of the Portland Union Depot as happy a crowd as ever went forth to revel, for a time, in the great out of doors.

The early morning of Sunday, August 2, was spent in Tacoma and at 9 A. M. special cars on the Northern Pacific carried us 45 miles to Fairfax. At this point we should ordinarily have taken to the trail, but through the kindness of the Manley-Moore Lumber Company, a logging train carried us four miles further. Here, at about 11:30 A. M., August 2, a picturesque line of over 100 went winding its way along a mountain trail towards the great beyond.

About six hours of travel along a good government trail beside the Carbon River brought us to Camp Spokwush—a good supper, a moonlight view of the mountain, a sleep more or less refreshing, and we were up again "hitting the trail." Early in the afternoon of Monday, upon topping a steep hill, we were entranced to see lying below us, some 23 miles from Fairfax, in a valley skirted by those rugged promontories, Desolation and Mineral Peak, and nestling at the side of that beautiful little body of crystal water, Mystic Lake, the white tents of Camp Prouty.

Presently we were the guests of our genial host, Francis W. Benefiel, chairman of the outing committee. Benefiel and Weston—will any outing ever seem natural without them! Seated at the long eating table, we were just revelling in a bowl of delicious oyster soup, when some one yelled, "Avalanche!" and then a distant, terrific roar greeted our ears, and, turning, we saw one of those awe-inspiring sights, so many times to be seen during our stay, of almost the whole side of a great mountain of snow sliding off—or down with its thunderous roar, the "beautiful," after a mile of dashing descent, dissolving into rivulets of white, airy nothing. And it was here that we were to spend almost two weeks!

The camp was, of course, in Rainier National Park, and no green tree or shrub may be cut—accordingly, we resorted to moss for our beds and found it a fair substitute for the boughs.

A night's rest and our indomitable leaders ordered the "try outs" to begin. Each of these was an expedition in itself worth the outing. Trips to Moraine, Grand and Spray parks, and to Lodi Valley, each literally gardens of hundreds of acres of flowers, with waterfalls and crystal streams, made the days pass only too quickly.

It had been suggested by Mr. John H. Williams, but negatived by Mr. Asahel Curtis, that a route to the summit by way of the Cleaver and Russel Peak was practicable.

In order to determine this question, surveys were made by several of the more experienced climbers, who pronounced the route impracticable.

On his return from this trip, Mr. John A. Lee reported seeing a real Mazama, a yearling and two small kids, attempting to make some of the elevations, but with the greatest difficulty. In her attempt a mass of rocks and debris was loosened and precipitated upon her, and she and her family scarcely escaped being overwhelmed. This story so fired the imagination of Mr. Rodney L. Glisan that on the following evening he related the adventures of a trip to Grand Park, where he claimed to have seen a snake ten feet long, an ant, which

carried away the eggs laid out for breakfast, and strange four-footed half human creatures which walked upright. Mr. Glisan had theretofore borne an enviable reputation for truth and veracity, but this story failed to find credence with many; however, at the evening camp-fire, his party reproduced, in circus style, the very objects reported to have been seen. A twisted pine made a snake so natural that when drawn across the hillside stage, many of the ladies fled with terror; a vaudeville animal-suit made Robert Hitch appear a veritable Caliban, but when, by some mechanical device, an egg was made to go up the side of a tree, in the antennae of an object for all the world like an ant, "Baron Munchausen" Glisan came back into his own for truth and unvarying veracity.

The camp-fire entertainments seemed to measure up to a little higher standard than ever before—every one seemed willing and able to do something worth while—the afternoon receptions and official teas were delightful. The wedding where the timid, blushing, petite Johanna Lee was married to that aforesaid Munchausen Glisan, with all the gorgeous costumes, the flower girls, the ring bearer and the Irish priest Riley, was one scream of fun. The altitude of 6000 feet seemed to give everybody nerve to attempt anything. The "Squaw Man," en tableau, with Miss Ethel Freeman faultlessly attired as the squaw, came in for a word of commendation, but when Chief Hooter Frank Riley essayed to put on the "Merchant of Venice," the acting scene of Bottom, Snug and Snout in Midsummer Night was put to blush. And yet, the generous, patient audience said some kind things even about this attempt of the rurals to please and entertain.

But we may not linger on this happy, joyous side of the outing. You must be taken up there, above the clouds, across those frowning fields of snow and ice, over hidden crevasses, up, up, where the air, once so free, seems so elusive and unsatisfying! But it was Paris—to reach and conquer which we were willing to hazard all!

The official ascent began Sunday, August 9, at 11 A. M., when 75 dauntless climbers left Camp Prouty, amid goodbyes and God-be-with-you's from those left behind. At 1 P. M. luncheon was had and presently the lower fields of Winthrop Glacier were encountered.

Our guides had determined that we should work our way over this glacier to Steamboat Prow, rather than to cross the glacier and work up the ridge between Winthrop and Emmons via St. Elmo Pass and Inter-glacier, as the mountaineers did in 1909. In crossing the upper portion of Winthrop some interesting ice formations were seen, particularly a column of varied colored ice, rising out of a crevasse, some 50 feet, with such a tilt as to remind one of the Leaning Tower

of Pisa. The ropes were used in making the ascent. At about 5 P. M. Steamboat Prow, a rocky point, well up on the snowfields, was reached, and here we were to spend the night. With difficulty the larger rocks were removed, and something like an intrenchment burrowed out where we might be sheltered from the wind. Light refreshments were served around a little fire, the fuel for which had been carried several miles, and as the evening wore on, one by one the climbers committed themselves to rest and quiet, but few to sleep. The night was clear, both moon and stars being visible and only utter exhaustion could cause one to slumber while in such austere environment; spectral in the moonlight, the old mountain lifted its hoary head above us; beaten, cowering and vanquished, the smaller peaks sullenly ranged themselves around their towering master; Boreas, the north wind, came howling around our ears, freezing the ground beneath us and causing us to huddle closely to the protecting rocks. At about 3 A. M. reveille was sounded, and by 4:30 the lines were again in marching formation. Parties of ten were roped together, an experienced mountaineer heading and closing the line. After being out about two hours there happened to the party headed by John Lee, a near-accident. Some 50 persons had gone over the path of travel just in front of Mr. Lee's party. The snow gave no indication of hidden crevasses—Mr. Lee and seven of his line had passed—the climbers being tied about ten feet apart—Mr. Riley was at the end and Miss Freeman just in front of him—when, without the slightest warning, the snow, which proved to be a rotten bridge over a yawning crevasse, gave way for six feet in width, between Mr. Riley and Miss Freeman, and went tumbling 50 feet below, leaving Mr. Riley and Miss Freeman leaning back, stretching tight the rope, with the yawning crevasse between them. Had they not been experienced mountaineers, cool and collected, one or the other might have been pulled into the crevasse. After a moment of tense, suppressed excitement, Mr. Riley untied himself, crossed the crevasse above the breach, and the line moved on as though it had not been face to face with a possible tragedy.

A few of the party were overcome with mountain sickness, so common in high altitudes, and were compelled to drop out, but about noon the lines began to reach the summit, and by 2 P. M. the unparalleled feat of getting so many as 71 persons in a single party to the summit of the grandest mountain in America proper, had been accomplished.

The Mountaineers of Seattle in 1909, under the intrepid Little Big Chief Nelson, had taken 62 persons to the summit, but the Mountaineers were dwellers by this great uplifted Earth Mass, and had

studied its moods and fancies for years, before its attempt, but the Mazamas had never visited it until they came to conquer it. Once stand upon such an elevation and you will never again question why people so exert themselves to climb mountains. Seemingly so near that one might touch them, stood St. Helens, Mt. Hood, Mt. Adams, Mt. Baker and the rugged, though less lofty, peaks of the Olympics. Paradise Park, to the south, was seen, and the many beautiful valleys, threaded by silver streams, stretched off and away. The crater afforded a sheltered place from the wind, and there, snug and warm, many took a refreshing nap, quite forgetful of the whirling mass of molten rocks which once pierced the sky where they then quietly slept. By 2:30 the summit was again in solitary grandeur and down the sides of the mountain went a happy, victorious throng of devotees of the incomparable sport of mountaineering. Not until 8 in the evening did the last line reach camp, when the ears of the stay-at-homes were regaled with the wonders of the official ascent of Mt. Rainier.

The climbing was in charge of Messrs. Geo. X. Riddell and A. Boyd Williams who, later, in recognition of their services, were presented with beautiful Mazama finger rings.

Too much praise cannot be given those responsible for the management of this outing; President Prouty, Francis W. Benefiel and the other members of the outing committee, Mrs. Sheldon, dean of women, and the guides, all were tireless in their efforts to make the vacation enjoyable and profitable.

We were favored with the presence of a number of members of the Alpine Club of Canada, a member of the Appalachian Mountain Club of Boston, and a member of the American Alpine Club. Mr. B. S. Darling, well-known climber of the A. C. C., organized a party at Vancouver, B. C., and brought with him to Camp Prouty the Misses Katherine B. Hallowes and Annie Reid. and Messrs. Harold H. Shanley, of Vancouver, and Alan Brooks Morkill, of Victoria, B. C. Mr. Allen H. Bent, corresponding secretary of the Appalachian Mountain Club, represented that organization with us, after having spent some considerable time in climbing among the Canadian Rockies. Dr. and Mrs. W. E. Stone, of Purdue University, Lafayette, Ind.; Dr. Carl C. Barck, Miss Edna Barck and Miss Mary J. Klem, secretary of the American Academy of Science, all of St. Louis; Mr. Howard Vernon, of New York; Dr. F. B. Wynn and son, James, of Indianapolis; W. B. Marble, of Chicago, and Professor B. W. Griffith of Los Angeles, all assisted in making the outing successful.

Mount Rainier

By H. H. Prouty.

Mt. Rainier, the Mecca of Mazamas in 1914, is easily the monarch of American mountains, from the Mexican to the Alaskan line. The altitude, now definitely fixed by the Geological Survey, is 14,408 feet. Mt. Whitney, in Southern California, is 14,502, thus overtopping Rainier nearly 100 feet, but John H. Williams, author and mountain authority, well says: "The result will not lessen the pride of the Northwest in its great peak. A few feet of height signify nothing. No California mountain masked behind the Sierra can vie in majesty with this lonely pile that rises in stately grandeur from the shores of Puget Sound." Perhaps its nearest rival is Mt. Shasta. Of almost the same height and also of great bulk, it is another great snow-covered peak; but rising as it does much farther inland and from a higher base, it does not present to view the dominating altitude of Rainier in an unobstructed view from Puget Sound or the nearby lakes. Rainier has many rivals in the Canadian Rockies, more rugged, more terrible, much more difficult of ascent, and therefore more sought by the professional climber, but none so far measured equals it in height, and probably none in size. To give an idea of its immensity, its base is estimated to cover an area of over 300 square miles, about one-fourth the area of Rhode Island. A straight line through the center of the mountain to the ends of opposite primary glaciers would average about 12 miles. If the mountain were cut off by a horizontal plane at 10,000 feet, the remaining summit would have an area of approximately 4500 square acres, or over seven square miles.

Portland's favorite is Mt. Hood, loved for its grace and beauty, but Mt. Ranier beside it would make a pymgy of it and tower over 3000 feet above.

Its glacial system is the greatest on the continent south of Alaska, and is said by scientists to excel that of any mountain in Europe.

For practically ten months of the year the warm Chinook winds bear from the southwest a heavy burden of moisture. Striking Rainier's vast high bulk, their first obstruction, the moisture is condensed and falls in the form of snow on the summit and upper reaches of the mountain to the depth of several hundred feet annually. The conditions which produce this excessive precipitation account for the mountain's wonderful glaciers. This vast accumulation of snow is forced by its own weight down the sides of the central dome, and is divided

by various rock projections or cleavers into 12 great streams of solid ice, all having their primary source in the great central neve. They are from three to eight miles in length and from one-half to three miles wide. The largest is the Emmons, on the northeastern side, and one of the most interesting is the Winthrop, just west of it. There are also several inter-glaciers, smaller, but all true glaciers. Between 50 and 60 square miles of the mountain are covered with perpetual ice and snow.

On the north side the great ice field descending from Liberty Cap and the region easterly, toward Russell Peak, breaks over Willis Wall and avalanches down its precipitous face 4000 feet to the head of Carbon Glacier. These avalanches were of very frequent occurrence, and of much interest at the camp during our entire stay. One would hear a rumble and cry "Avalanche!" Everybody looked at the mountain to see a cloud of white dust swiftly descending the face of the cliff. Occasionally the black wall would be almost entirely obscured, and as the dust cleared away white streams of pulverized ice and snow could be seen coursing to the base.

Between the lower ends of the ice streams, at an altitude of from 4500 to 6500 feet, are the Alp lands. These are valleys and slopes with sparse small timber and open glades crossed by clear brooks and carpeted with bright-hued flowers. They extend clear around the mountain and are delightful places in which to spend an outing in July and August. In Winter they are, of course, all deeply covered with snow.

Paradise Park and Indian Henry's Hunting Ground on the south are the most accessible, but Spray Park, Moraine Park, Grand Park and Summerland, on the north and east, are equally, and in some respects, more attractive. Some of our much-traveled mountaineers thought the Lodi Valley, a little canyon-like place near Grand Park, was "the prettiest place they had ever seen."

Below the parks the timber soon gets heavier and merges into the forests of great firs, cedars and spruces common to the west slope of the Cascade Mountains in Washington and Oregon.

Following the trail up the Carbon River we passed many stately firs from four to six or seven feet in diameter and 200 to 300 feet high.

From a mountaineer's standpoint, Mt. Rainier is not a difficult nor dangerous peak to climb, because there is no difficult rock-work, and very seldom any step-cutting on steep ice slopes. But as an endurance test it stands in the front rank of United States mountains. This is because in the ordinary climb one has to overcome 8500 or more feet in altitude and finish in the rarified atmosphere found above the 14,000-

foot level. In such air every exertion is excessively fatiguing. One can only take a few steps between rests. On last Summer's climb every Mazama will testify that the last few hundred feet from the Saddle to Crater Peak was by far the *longest* and hardest part of the climb.

Mazamas had climbed Rainier twice before—in 1897 and 1905, both times from the south side. No one in our party of August, 1914, had ever been on the north side before. We were advised to try Russell Peak, between the Carbon and Winthrop glaciers (never yet climbed) and failing here, to go around over Winthrop Glacier, St. Elmo Pass, Inter-glacier, Steamboat Prow and Emmons Glacier.

One trip up the cleaver below Russell Peak convinced that here was no feasible route for our large mixed party of climbers, so attention was turned to the glaciers.

George X. Riddell and A. Boyd Williams, two young Portland Mazamas of only local climbing experience, accompanied by Thomas E. O'Farrell and Martin Krogh, park rangers, because they wished to make their first ascent and because a party of four was safer, left camp and reached the Winthrop Glacier at an elevation of about 7000 feet. From here they went to Steamboat Prow on the glacier. It was badly crevassed, but they had no especial difficulty. They bivouaced that night and next morning took the first route that presented and went straight up over Winthrop to the summit. It was steep, but the snow was in good condition. There were some bad crevasses, but they were easily avoided. Later the official party climbed over the same route, and of the 75 starting, 71 reached the summit.

Although none of us knew it at the time, this must have been practically the same route taken by Professor I. C. Russell in 1896. He describes the route as quite difficult, but this may be accounted for by the fact that they were unlucky in the selection of their course. It may have been because they had considerable packs, which would make any route difficult in that atmosphere. It took them nearly all day to reach the summit, and, like Stevens and Van Trump on the first ascent, they stayed in the caves of the crater that night. Next day they descended via Gibraltar to Reece's Camp, and during the two following days returned to their camp near Winthrop Glacier via the east side. There is no doubt this route is shorter and less dangerous than the climb from the south past Gibraltar.

There are only two possible dangers—crevasses and the possibility of bad storms. Crevasses lose their danger when the rules, that there shall be at least three in the party, that they are properly roped,

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Looking south from the Sluiskin Mountains across upper Moraine Park at Mount Rainier, showing Willis Wall at the head of Carbon Glacier. Against the extreme left [illegible]

Photo by Kiser Photo Co., Portland.

View looking northeast from the head of Moraine Park. At the left is Mount Desolate, a part of the Sluiskin Range; in the right foreground is Mineral Mountain, with Mystic Lake in the center, the white tents of Camp Prouty nestling among the trees. The Sourdough Plateau is seen in the background, with the high Cascades of the Glacier Peak region towering against the horizon.

Photo by Kiser Photo Co., Portland.

Lupine beds at timber line of Moraine Park. Willis Wall in the distance.

Photo by O. B. Ballou, Portland.

Avalanche falling on Carbon Glacier over Willis Wall. Note the clouds of snow dust obscuring part of the wall and the summit. View was taken with ordinary 3A kodak last summer.

and that they *always* keep proper distances apart, are obeyed. One must use judgment in regard to weather on any route. There is no danger from falling rocks, nor necessity for life lines, as at Gibraltar.

No serious attempt to scale Russell Peak was made. It may yet be climbed if a systematic and determined effort is made, but, when conquered, it is doubtful whether any amount of labor and expense can make it a more practicable route than the one we traveled. The summit of Russell Peak is still far from the highest point on the mountain.

Mazamas appreciate Mt. Rainier and will look forward to future outings among its magnificent attractions.

"Go forth under the open sky, and list
To Nature's teachings."

BRYANT—*Thanatopsis.*

Mazama Ascents of Mt. Rainier, 1914

By Geo. X. Riddell.

Mt. Rainier, like most of the snow mountains of the Cascade Range, presents its steepest face on the north, where the heavy accumulations of snow have built up great glaciers, which in turn have done the heaviest work in eroding deep canyons and carving mighty cirques out of the mass of the mountain.

We accordingly find numerous steep cliffs, sharp ridges, and the glaciers well broken up with séracs and crevasses. Carbon glacier has worked out a huge amphitheatre at its head; the largest excavation that the mountain has suffered. This amphitheatre extends approximately eight thousand feet from east to west and is a mile or so in length. Willis wall, the great cliff at its head, is some four thousand feet in height.

To the east of the Carbon, Winthrop Glacier, pouring down its enormous ice stream, has carved out a huge slice of the mountain. This glacier rides a very steep bed, with many dome-like pillars of hard rock projecting here and there. Some of these pillars are the granites of the old peneplain upon which the mountain was built, while others are of dense igneous rock, from the early eruptions of the volcano. These were surrounded by rocks of softer texture, which the glacier has eroded away, leaving the harder projections, in some cases three hundred or more feet in height. The mass of glacial ice, in moving over these rocks, has become badly crevassed, producing radiating fractures, which intersect and cross each other, causing a badly broken surface. In places these crevasses have crossed each other almost at right angles, forming huge rectangular obelisks of snow and ice, some of which are quite one hundred feet high, such as were seen on the trip to Steamboat Prow.

Between these two glaciers is the Carbon-Winthrop Cleaver, a sharp ridge composed of very rotten rock, or lava blown into fragments by powerful eruptions. These rocks are loose and readily disintegrated.

It was thought by those familiar with the north face of Mt. Rainier that this cleaver would offer the most practicable route to the summit; and it was strongly recommended to the Mazamas for their ascent. So far as we know, no successful attempt has yet been made to climb the mountain along this cleaver. The route from the northeast over the Emmons glacier presented difficulties and dangers that

were desirable to avoid. The Executive Council thought it advisable to send in an advance party to explore the north face of the mountain and select a route for the ascent. This party consisted of H. H. Prouty, the President of the Club; A. Boyd Williams and the writer. We worked under the direction of Mr. Prouty. We left Portland two weeks in advance of the main party, well equipped with ropes and ice axes. Arrived at Fairfax, we located the Mazama packer, and having arranged for transportation of our dunnage bags to Moraine Park, started up the Carbon river trail on our way to the mountain. After tramping some ten miles we passed the night at a ranger's cabin. Early next morning we were on our way to Spokwush, at the foot of the Carbon Glacier, where we expected to find Jack Benefiel, who had gone in some days previous to look after the packing in of the supplies and equipment. We found the outfit, and lunching on some crackers, pushed on our way over the lower reaches of the Carbon Glacier to Moraine Park. We scouted about the park looking for a satisfactory site to establish the camp, but could not find Jack; we had passed him somewhere. Williams and I returned to Spokwush to look after our dunnage and supplies, and to locate Benefiel if possible. We located him about three o'clock, and finding the pack train making its way in, returned to the park, picked up Mr. Prouty and proceeded on to Mystic Lake, which was decided upon as a site for the encampment. The pack train got in about 9:30 that evening, and soon we were comfortably settled and making ready for our work of exploring for a way to the summit.

Our first morning at the Mystic Lake camp broke bright and clear. Knowing the probability of bad weather, we at once started to climb the Carbon-Winthrop Cleaver to survey the surrounding country, and ascertain the prospects of making an ascent of the mountain by this route.

Leaving camp we worked our way up the west side of Mineral Mountain to the top of the S ridge, and then laboriously climbed the ridge point of the cleaver to an elevation of 10,300 feet. We met with no difficulties along this portion of the ascent. It was easy climbing, over snow slopes and patches of broken lava on the top of the cleaver. Our progress, however, was halted by a perpendicular cliff about 200 feet high, which broke on a knife edge of rotten and crushed material; and this dropped in sharp slopes for a thousand feet or more on either side to the Carbon and Winthrop Glaciers. This ridge could not be approached from the top of the cleaver and if ascended it must be from the surface of one of the glaciers. It being impossible as a route for the official climb, we decided to divert our attention to the

Winthrop Glacier just to the east of the ridge up which we had come, and returned to camp.

It was on this trip that we met our first misfortune, a serious menace to our success. Mr. Prouty sustained an injury to his foot; it grew worse, and compelled his return to Portland. A storm broke during the night, and for four days we were camp-bound. The time was devoted to pitching tents and in the multitudinous details of preparing for the advent of the main party. We also managed to get in some interesting side trips to points about the lower reaches of the mountain. On one of these we crossed Carbon Glacier, at an elevation of 5,500 feet, and over the lower part of Russell Glacier to Spray Park. Passing through the lower fields of Spray Park we came to Spray Falls. Here a stream of water draining the snow fields above the park plunges 500 feet from the plateau into the canyon that has eroded by the north Mowich Glacier. These falls are very beautiful and form one of the major attractions of the mountain. Reluctantly tearing ourselves away, we walked along an old miners' trail, now improved by the government, to Crater Lake.

This lake is the longer part of a mile in its greatest length. It is at an elevation of 4,929 feet surrounded by glacier-scarred lavas, on which soil has accumulated sufficient to support a heavy growth of Alpine timber. The lake is a beautiful sheet of water, and is a close competitor of Spray Falls for scenic supremacy. From Crater Lake we climbed Knapsack Pass to an altitude of 6,000 feet, and traversing the Mother mountains, descended across Cataract Creek, and passing through Seattle Park, returned to camp across Carbon Glacier.

The morning of July 26th was sufficiently clear to warrant an attempt to discover a way across the Winthrop Glacier. We had been informed at Tacoma and at Fairfax that we would find it very difficult of passage owing to its surface changing greatly from year to year. We found the western edge badly broken, with large crevasses, from an elevation of 6,000 feet to Russell Peak. Over its lower reaches, the glacier is extremely broken, and covered with great masses of moraine material, making the going slow and laborious. Our first problem was to discover a passage across the glacier. The attempt was made by A. Boyd Williams, Park Ranger M. Kroeg and myself. Leaving camp we worked our way up to the western edge of the glacier at an elevation of 7,000 feet. Here a dense fog shut us in. While waiting for it to lift, we hunted about for bits of heather, with which we made a fire in a sheltered nook and warmed ourselves a little. In working along the edge that borders the glacier, I noticed the faint markings of a goat trail leading directly toward the glacier. Figuring

Photo copyright by Kiser Photo Co., Portland.

Mazamas on lower Winthrop Glacier on way to Steamboat Prow on official climb. Miles of glacier like this were traveled. The ropes were constantly needed.

Photos by E. F. Peterson, Portland.

Scenes on Mazama ascent of Mount Rainier, August 9-10, 1914. No. 1—Columbia Crest, 14,408 feet above the sea, seen from the west wall of the crater. Note the comparative size of the climbers. No. 2—Resting in a crevasse at 12,500-foot elevation. No. 3—An interesting snow bridge at 13,000 feet. No. 4—Snow field of Moraine Park seen between pillars of ice high on Winthrop Glacier.

that they must have a way across the glacier, and that where a four footed Mazama led we could follow, we cast about for further signs. The fog soon lifted, and taking up the goat trail, we followed it across a steep snow slope down to the glacier's edge, then out on the ice, threading our way through an intricate maze of crevasses. The sign had become difficult to follow, but a sharp hoof print here, and a few strands of wool there, enabled us to follow it all the way to St. Elmo Pass on almost a grade line, and along what afterward developed as about the only practicable crossing. We felt that we had accomplished a satisfactory day's task and returned to Mystic Lake hopeful for the prospects of success.

Early next morning in company with Park Rangers Tom O'Farrell and M. Kroeg, Boyd Williams and I endeavored to effect the conquest of Rainier's summit. We left camp with packs of about forty pounds each, containing blankets and provisions for two days, and a small supply of wood, as the bivouac camp would be far above timber line. Following our route of the day before, we crossed on the goat trail over the glacier, and began to work out a way to Steamboat Prow. At first we found fairly open snow and but few fissures; soon, however, we were surrounded by a tangle of radiating crevasses. We were on a point where the glacier was overriding two large columns or projections of rock, on either side of us, causing the current ice to break and open in every direction. By proceeding slowly and with caution, trying here and there, keeping well roped together, we at last worked our way through the labyrinthine maze to clearer ice above. The glacier surface was badly crevassed all the way to the Prow; but by dint of careful effort we succeeded in getting around and past them all, and emerged from the ice at the Prow about three o'clock in the afternoon. Here we dug out and leveled places for our beds, melted some snow for coffee, and fixed a camp for the night.

After completing our domestic arrangements, we climbed the nose of the Prow and carefully studied the snow and ice fields above us, looking for a way by which we might make the ascent. A careful survey of the mountain face above, enabled us to map out a general course that seemed to present a passable route by which the summit might be gained.

We were astir early, and by five o'clock were again threading the crevasses, along the course selected the evening before. No difficulty was experienced for the first three thousand feet of the ascent. We then came into a bad area of cracks and fissures; but repeating our tactics of the preceding day, they were finally negotiated, a snow bridge getting us over an almost impassable crevasse, to the comparatively

smooth snow of the upper névé. From here on the way was plain, nothing more than steady hard climbing over the névé. We made rapid progress, reaching the summit at eleven.

A stiff, freezing wind blew over the summit. It was hard to keep a footing on the last few hundred feet from the saddle to the summit. The cold was intense.

We were scarcely arrived at the summit, when a black cloud, blowing in from the southwest, wrapped the summit of the mountain in a dense fog, biting cold. Hastily signing our names on a card, which we placed in a can, we began to retrace our steps down the mountain. This was difficult at first because of the fog, which clouded everything; but by the use of a pocket compass, we kept on our course and soon picked up our trail in the snow field of the saddle. On our way down the mountain, we located landmarks and defined our way through the crevassed areas. We were soon below the fog cap, and regained the Prow about one. The return to Mystic Lake was more rapid, as the route was now well defined; and by three o'clock we were back in camp, with the question of a feasible way to the summit solved, in readiness for the coming of those whom we had preceded and with the way clear for the official climb. We were now confident of our ability to guide a large party to the summit with comparative safety. The long distance would require an all-night bivouac on Steamboat Prow; but that could be made with some degree of comfort, if care be used in making the necessary preparations. The crevassed areas on the glaciers presented the most serious difficulties and dangers, though care in passing them with a free use of the rope would minimize the risk.

A wire sent to Mr. Prouty informed him of our success; and his foot being much better, he hastened from Portland, reaching the camp on the evening of July 31st. He was anxious to go over the route, so about three o'clock next morning Mr. Prouty, Jack Benefiel, Boyd Williams and myself started for the summit in an endeavor to make the round trip from Mystic Lake in one day. We thought to have some difficulty in making our way in the dark over the rough country, but after we had tramped for a while it began to grow light and we had no trouble.

We reached Steamboat Prow about six o'clock. Here we rested for an hour and refreshed ourselves with a piece of hard tack. The day broke ideal. The snow was hard and in excellent condition. By hard climbing we made the summit shortly after two. The view was somewhat hazy, although we could plainly see Mt. Baker, Glacier Peak, and Mt. Stewart to the north, while Hood, Adams and St. Helens stood out clear on the southern horizon.

We crossed the crater to the south rim, where we found the Mazama box, registered our names and started on our return about three o'clock. It had been a bright, clear day and once out of the wind, which was blowing freshly on the summit, it was warm enough to soften the snow. On our downward trip we were frequently sinking waist deep in the soft snow, necessitating vigilance and careful roping. This condition made considerable danger, particularly over the region above Steamboat Prow, where the snow was honeycombed underneath by unequal melting and shifting of the névé. Large blind crevasses were numerous. Many of these were covered by a thin veneer of snow, making a bridge, looking safe enough but which would break through with the first few pounds weight.

We reached the Prow in safety, after a number of plunges, about five o'clock, refreshed ourselves on the invigorating air for want of anything more substantial, and hastened on down the mountain toward camp. The névé below Steamboat Prow is much more firm and soon terminates, passing into the solid stream ice of the glacier at about 8,500 feet elevation. From this point the crevasses become more numerous; but they had nearly all opened, so that they were detected much more easily. Using due care, we got around or past them all and made camp by seven o'clock, after sixteen hours of continuous effort.

On Monday, August 3d, the main Mazama herd arrived in camp up the trail from Fairfax, tired and hungry. It did not take long for them to become settled and at home. The first week passed in making interesting trips up the Carbon Cleaver, to the nearby glaciers, Spray Park, Grand Park and the adjacent peaks—large mountains in themselves, but dwarfed into insignificance by "Tahoma's" overwhelming magnitude.

The official climb was fixed for the 8th and 9th of August, but inclement weather compelled its postponement for a day.

The plans for the climb promulgated by the outing committee contemplated leaving the Mystic Lake Camp during the forenoon, each participant equipped with blankets for a night on Steamboat Prow and provisions sufficient for two days. A night bivouac on the prow would permit an early start and assure gaining the summit in ample time for a return to camp.

The party of seventy-five persons who had arranged to undertake the ascent were divided into nine companies of from six to twelve persons. Each company was in charge of a leader, whose duties were to keep his company roped on snow and ice, to supervise the method of climbing, and to enforce the few rules that experience has shown are

needful to the safety and well-being of those making an ascent of a lofty mountain peak.

The leaders appointed to the several groups were Dr. W. E. Stone, of Purdue University; B. S. Darling, of Vancouver, B. C.; Dr. Frank B. Wynn, of Indianapolis; Rodley L. Glisan, Eddie Sammons, W. C. Yoran, Allen H. Bent, of Boston; Francis W. Benefiel and John Lee. Boyd Williams and myself were to guide the parties along the route we had mapped out on our former ascents.

Each person made up his or her pack. These varied from 20 to 60 pounds each, according to individual inclination and taste. Some were arranged with skill in pack sacks of approved design, while others bore resemblance to an animated hay cock moving up the mountain. Some were so ponderous that one was caused to wonder which was the pack and which the packer.

The several parties were assembled and started up the trail to the Winthrop Glacier in consecutive order, the last company leaving the lake before ten o'clock, with the good wishes of those remaining behind resounding in their ears. The trail led up the west side of Mineral Mountain to an elevation of 6,400 feet and then bore southeast for a mile or more on a gradual slope, over snow fields and across patches of rough lava blocks. At about 7,000 feet we stopped for luncheon, where a copious supply of pure, snow cold water gushed from the ground.

After the lunch rest we resumed the packs and took up the steady grind of the long seven-mile climb to Steamboat Prow. We were ere long on the surface of the Winthrop Glacier, where we had found the goat spoor. Here the members of each separate company were roped together, each leader looking well to the condition of the ropes and to all details of preparation. This became a measure of prudent precaution because of the danger of underlying blind crevasses, into which an individual climber might step, or a snow crust give way dropping one into a fissure.

The course was laid over the glacier surface, as we had gone before, with an occasional detour to avoid some newly opened crevasse. The swifter of the companies began to arrive at the Prow before four o'clock, and by five the entire number had safely reached the ridge of rock and scoria at the point of the big wedge.

Packs were discarded, and each person, selecting a spot as far removed from the perpendicular as he could find, began to excavate the loose material in an attempt to get a place level enough to lie down; and also to build up a screen of rocks for a wind shield, necessary here where the air is freezing cold at night. By good fortune what little

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Upper—"Leaning Tower of Pisa," among big seracs of Winthrop Glacier at 7500-foot elevation.

Middle—Curious "monster"—ice formation on upper Winthrop Glacier. The great height of these blocks appears on noting climbers who are descending.

Lower—Mazamas swinging slightly downward to avoid a wicked bergschrund. The saddle, 500 feet below the summit, is on the left.

Photos by Kiser Photo Co., Portland.

Upper—Ready to start for the summit at 4:45 A. M. August 10th. Steamboat Prow on the right; Sluiskin Mountains in the distance.

Middle—Mazamas skirting a crevasse high on the Winthrop Glacier. Lower Winthrop Glacier in the middle distance and Sourdough Mountain on its right.

Lower—There were many crevasses passed of which this one is typical.

air was moving came from the east, and as we were strung out along the western slope of the Prow we were well protected; conditions were very favorable for us.

Eddie Sammons and Louisa Almy supervised a small fire, made of wood which had been carried from timber line, over which two five-gallon-cans of hot soup were cooked. This was very welcome. It was not easy to cook food here. The lack of oxygen in the rare atmosphere made it difficult to maintain a satisfactory fire, while the decreased air pressure caused water to boil at a much lower temperature than at the lower levels. Cooking was attended with difficulties, all of which, however, had been anticipated and was in a measure overcome.

Most of the party spent a fairly easy night, though no doubt many of them would have been more comfortable in their beds at Mystic Lake. No difficulty was experienced in getting them out early next morning. A hot breakfast was in readiness by four o'clock; and by five all were roped into their respective companies and the climb had commenced. The air was sharp and the snow hard. This enabled us to make excellent progress. At nine o'clock we had gained the twelve-thousand foot contour. Here the whole party rested for an hour in a great bergschrund, where we were sheltered from the wind. The climb resumed, steady progress was the order until the summit was gained.

Eddie Sammons led his company over the top of Columbia Crest at eleven-thirty. John Lee's regulars pulled up before two. His company had experienced the only accident during the climb.

Shortly after leaving the Prow, a large snow bridge was used to cross a deep crevasse. The advance companies had crossed safely. Lee, who brought up the rear, had crossed with all his company but Frank Riley, when the snow bridge caved in, leaving a deep chasm between Riley and Miss Freeman, who was in the act of stepping off the snow bridge as it fell. Presence of mind, a quick halt, and careful work conquered the crevasse. Riley found a way around the end after a little time.

At breakfast that morning it was found that the hard tack and bread were insufficient for lunch. Boyd Williams undertook to return to Mystic Lake Camp for an additional supply. He made the seven-mile tramp to camp, got the bread and by almost superhuman effort reached the summit by one o'clock. ,

It was an ideal day, although a light haze of smoke blurred the distant view. Mts. St. Helens, Adams and Hood were clearly seen on the southern horizon, and Baker, Glacier Peak, Stewart and the myriad lesser peaks filled the view to the north. The old book was taken from the Mazama box on the south rim of the crater to the summit of

Columbia crest. T. Brooke White wrote an account of the climb. We then registered our names, 71 in all. This is believed to be the largest party that ever stood on Rainier's summit at one time. Mr. White has since been called by death. He is sincerely mourned by all Mazamas. A bold and intrepid climber, he encouraged others and cheered and helped wherever he happened to be. Peace to his ashes.

The downward journey was commenced about one-thirty, and by two o'clock all had left the summit. The return was without incident, and by five all had reached the bivouac camp at the Prow, where packing up the sleeping bags and blankets, the way to camp was resumed. By nine o'clock all had reported in and were doing substantial justice to the viands which Chef Weston had in readiness in ample supply. It had been a great climb and one where all worked hard to make the goal. We had passed dangerous places where a misstep could have produced disastrous results. Our good fortune can be largely attributed to the personal morale of the climbers and the skill and constant watchfulness of the company leaders. The omnipresent good will and strong determination of each individual climber kept up an atmosphere of intended success that went a long way in getting us through.

The insidious enemy of the Alpine climber did not leave us unscathed. The second day's work was yet young when Mr. Montague and others succumbed to severe attacks of mal-de-mountain, and were compelled to return to the Prow. Seventy-one of the seventy-five making the start registered at the summit.

Those comprising the party making the ascent were:

Francis Benefiel, leader; Lola Creighton, W. V. Glascock, Ray Filloon, and R. V. Coleman.

Dr. W. E. Stone, leader; Mrs. Stone, T. Brooke White, Anne Bullivant, D. G. Lebb, C. A. Guerne, Mary E. Powell and Leroy E. Anderson.

Dr. Frank B. Wynn, leader; J. A. Wynn, Mabel Furry, Conrad J. Sieberts, J. C. Sharp, Gladys Kellett, A. A. Parker, R. W. Ayer.

Rodney L. Glisan, leader; Anne Dillinger, R. Hitch, C. W. Howard, Albert C. Hale, Otis L. Hale, C. A. Barnes, C. Phillips, Marian Schneider.

Eddie Sammons, leader; Louisa Almy, Keith M. Walker, A. S. Peterson, Virginia Kirby, J. W. Marsh, Fred Luetters, J. K. Parker, Arthur Allen.

W. C. Yoran, leader; Martha Nilsson, Mrs. Edna Shotwell, Miss Mildred Stanford, R. J. Davidson, Geo. M. Williams, Fred H. McNeil, A. L. Heyer.

B. S. Darling, leader; Katherine B. Hallowes, Anne Reid, Harold

H. Shanley, W. B. Marble, R. J. Clary, D. M. G. Kerr, A. B. Morkill.

Allen H. Bent, leader; Mary C. Henthorne, H. G. Johnson, Dr. C. V. Luther, Edwin F. Peterson.

John A. Lee, leader; Edith Ellis, J. E. Bronaugh, Alice Banfield, Pearl Harnois, W. G. Collins, Frank B. Riley, Mrs. Frank Branch Riley, Ethel Freeman, A. Boyd Williams, Geo. X. Riddell.

Later during the encampment, a second trip was planned to enable several who came too late for the main ascent to climb the mountain. This party was composed of the following: J. M. Mason, B. F. Wenner, T. Raymond Conway, Miss Lella L. Dean, Miss Minnie Heath, Earl Myers, Hugh Pastoriza, E. C. Jennings, Charles A. Benz and Charles H. Wortman.

They left camp during the forenoon of August 12th, led by Boyd Williams. They made the climb across and up Winthrop Glacier to Steamboat Prow, where they bivouaced for the night. I was unable to make the first day's trip with them, but joined them on the Prow early on the morning of the 13th. We got away from the Prow about 5:15. The condition of the snow was excellent, the party were in fine fettle, and by steady work we made the summit of Columbia Crest at a quarter before twelve. Misses Heath and Dean, the two ladies making the summit, were excellent climbers who looked upon the frequent stops, occasioned by the rarified atmosphere, with disdain rather than with pleasure.

On the summit we found a party of nine from Paradise Park, under the guidance of Jules Stamphler, the guide from Reese's Camp.

After an hour on the wind-swept summit, we started on the return. The weather and the snow were in excellent shape. The crevasses gave us no serious trouble except for a distance below the Prow, where several had widened from the day's melting. These, by good luck, we got around safely, and by seven o'clock we were back at Mystic Lake.

This was the last ascent of the mountain made during the encampment. Four trips had been made to the top of Columbia Crest from Mystic Lake and eighty-five people had successfully reached the topmost peak of the mountain.

TABLES OF DISTANCES*

The following tables, which were compiled by the Department of the Interior, gives the distances of principal points of interest in north side of Mount Rainier Nstional Park from Fai.fax, Wash., starting point of 1914 outing of Masamas:

SPRAY PARK-CARBON RIVER LOOP TRIAL

Name	Distance and direction from Fairfax.	Altitude above sea level.	Best means of reaching.	Remarks.
	Miles.	Feet.		
Grindstone Camp	10 S.	3,300	Horse or foot	In national forest.
Western Boundary	12½ E. of S.	3,500	do	Springwater.
Mountain Meadows	14 SE.	4,000	do	Good camping; horse feed.
Crater Lake	20 SE.	4,929	do	Beautiful clear lake; good camping; side trips; log cabin.
Fay Peak	21 SE.	6,500	Foot	Small cabin overlooking Crater Lake; easy to ascend and affords view of surrounding country.
Castle Rock	22 SE.	6,116	do	High rock on divide between Crater Lake and CarbonRiver
Eagle Cliffs	23 SE.	4,900	Horse or foot	Good view on Mt. Rainier.
Spray Falls	23½ SE.	5,300	do	Probably highest and most beautiful falls on north side of Mt. Rainier.
Spray Park	24 SE.	6,000 to 8,000	do	Most beautiful park on north side; reached by two routes, one via Crater Lake, and one via north boundary, Carbon River and Cataract Basin horse trails.
Observation Rock	25 SE.	8,364	Foot (with guide).	Good view of Western Washington; good try-out trip and climb; coasting on snow.
Mist Park or Cataract Basin.	26 SE.	6,000	Horse or foot	Beautiful park on north slope draining to Carbon River.
North Mowich Glacier	25 SE.	4,000 and up.	Foot from, Spray Park (guide).	Clear ice; source of North Fork of Mowich River; can be crossed on foot.
Carbon Glacier	20 via Carbon River and 30 via Crater L. trail. S. E.	3,350 and up.	Horse or foot.	Most beautiful glacier on Mt. Rainier.

CARBON RIVER-MORAINE PARK TRAIL.

	Miles.	Feet.		
Carbon River Ranger Station.	9 E.	2,026	Horse or foot.	Deposit firearms on entering reservation.
Chenuis Creek and Falls	9½ E.	2,150	do	Good fishing.
Ipsut Creek and Falls	11 E.	2,500	do	Do.
Spokwush Creek	18 E.	2,900	do	Do.
Moraine Park	22 E.	3,300 and up.	Horse to Carbon Glacier thence on foot.	Mountain Park with beautiful flora on north side of Carbon Glacier. Good camping. Side trips to Elysian Fields, Winthrop Glacier, Sluiskin Mountains, etc.
Mystic Lake	23 E.	5,750	do	Clear beautiful lake in Moraine Park.
Elysian Fields	24 E.	5,700	do	Valleys in Sluiskin Mountains. Mountain goats roam here in large bands.

*Published by permission Secretary of Interior.

TABLE OF DISTANCES—Continued

CARBON RIVER-GRAND PARK TRAIL.

(Branch of Carbon River-Moraine Park trail, turning to north 2 miles below Carbon Glacier.)

	Miles.	Feet.		
Chenuis Ridge or Chenuis Park.	22 E.	4,000 to 6,000	Horse or foot.	Beautiful park region with high cliffs, lakes, snowfields and high rocky peaks, Good trail Mountain goats roam here. Good horse feed.
Natural Stone Bridge.	23 E.	5,400.	Horse or foot.	One of the natural wonders of the north side of the park.
Van Horn Falls, Lake Ethel and Lake James, Mosquito Flat.	24-26 E.	About 4,400	do.	Scenic region. Good camping. Good horse feed. Fishing below falls.
West Fork of White River.	26 E.	3,240 at crossing.	Horse or foot.	Swift, muddy, glacial stream, draining Winthrop Glacier. No bridge. Cross with horses or on foot log.
Grand Park.	Approx 35 E.	5,700.	do.	Most extensive mountain park on north side. Wild game. Unobstructed view of Mount Rainier.
Lodi Creek.	36 E.	5,700 and up.	do.	Clear spring creek in beautiful park basin. Mountain flora abounds in great profusion here.
Frosen Lake, Sourdough Mountain, Huckelberry Creek Basin, etc.	40 E.	6,000 to 7,000	do.	Vast region in northeastern part of natural park reached on side trips from main Grand Park trail.
Glacier Basin.	40 SE.	6,000.	do.	Beautiful alpine park at head of White River, near Emmons Glacier. Reached by horse or foot either by White River trail from Buckley and Enumclaw or by Grand Park trail.
Camp.	41½ SE.	9,000.	Foot.	Temporary camp. No shelter. Sandy place where beds may be spread for night.
Avalanche Camp.	26 SE.	10,900.		Highest point that can be reached on ridge between Carbon and Winthrop glaciers No shelter or fuel.

Arduous Climb of Rainier over Tahoma Glacier.

By E. C. Sammons.

Winthrop T. Hovey, a member of the Mountaineers and the Sierra Club, relates a most interesting story of an exceedingly arduous ascent of Mt. Rainier via the Tahoma Glacier by himself and three friends, guided by Joseph Stampfler, in July of this year. This was the route of the climb of the mountain made in 1891 by P. B. Van Trump, who with General Hazard Stevens, in 1870, was the first white man to climb the mountain.

Mr. Hovey and his party left camp in Indian Henry's Hunting Ground at 11 o'clock at night. They crossed the bench below Pyramid Peak and followed the Pyramid Cleaver to an elevation of 9000 feet, then descended to the south fork of the Tahoma Glacier. To do this they had to cross several frozen fields of snow that sloped at sharp angles. They reached the center of the glacier about 6 o'clock in the morning and expected to make the remaining 3000 feet of climb before noon. But here they found that their difficulties had scarcely begun. Guide Stampfler had decided to take a route up the center of the glacier in order to avoid the jumbled seracs on the right side, and to be far enough from the left side to avoid avalanches. Huge blocks of snow and ice were encountered, piled in some places hundreds of feet high, in conglomerate masses. Around these many detours had to be made.

After being forced to cut steps for nearly 500 feet on an ice slope so steep that they could rest their bodies on the wall in front of them, they passed the last of the rough ice about noon. Up to this time the climb had been extremely dangerous and most fatiguing. Traveling was considerably easier above the broken ice, however.

Finally they came to a chute of perhaps 1000 feet which they had to ascend in order to reach the saddle between Liberty Cap and Columbia Crest. The afternoon sun had so melted the crust of the snow on this chute that the climbers broke through at nearly every step and progress was very slow. In describing this portion of the climb Mr. Hovey said that they sank into the snow up to their knees and sometimes to their waists at nearly every step, and, in places, had to crawl on their hands and knees. Two of the party had by this time become so exhausted that they frequently dropped unconscious in the snow. It was only after strenuous urging that they could be persuaded to push farther on up the mountain. To turn back was

impossible; they had to get to the summit in order to get home again. After about three hours of such traveling, Mr. Hovey says they reached a part of the small crater, where they slept for an hour. At 5 o'clock in the afternoon they reached the crater too exhausted to attempt the descent of the mountain that day, being forced to camp for the night. They slept as best they could there in the pulverized lava field, which became so warm that they could not stand it. They would bake on one side and freeze on the other. At last they could stand this condition no longer and took refuge in one of the steam vents. There they were protected from the wind, but the cave was damp and water dripped incessantly from the snow above. However, they managed to stay there until 6 o'clock in the morning and then started, in the face of a bitterly cold wind, for the south rim of the crater, where, at Register Rock, they recorded their names in the book. The party descended the mountain via the Gibraltar route to Paradise Valley. The members of the plucky group were pretty well exhausted when camp was reached after their 36 hours of strenuosity, but none suffered any ill effects.

"We were well satisfied with our accomplishment," said Mr. Hovey, in discussing the feat. "Personally, I wouldn't have missed the experience by a good deal, but I wouldn't go through it again for $10,000."

"When I am stretched beneath the pines,
When the evening star so holy shines,
I laugh at the lore and the pride of man,
At the sophist schools and the learned clan;
For what are they all, in their high conceit,
When man in the bush with God may meet?"

EMERSON.

This Is The Life.

By Frank Branch Riley

When the Mazama returns from the mountains he will tell you of an impressive moment near the beginning of the annual outing, which is not forgotten as long as the summer itself is remembered. We like to recall and retail how, at the end of a last long day on the in-trail, we emerge suddenly from the forest or swing over the crest of a final ridge and look down for the first time on the "base camp," selected for our permanent home in a new world of unfamiliar peaks and strange valleys.

We lean on our alpen-stocks, curious, keen; we take in the proportions of the site; mark its apparent beauty of stately groves and cascading streams, with wistful, half-doubting eyes. The voice of another camp of proved delight and golden memories nestling at the foot of last year's mountain, calls appealingly. In this new rendezvous, all untried, are the rare traditions of Mazama "life" to be maintained; shall we taste the old spirit, the spontaneity, the wholesome abandon, the comaradarie, the co-operation of other play-times in the open? Shall these hills echo at night with such laughter and song, or boom at sunset with the triumphant cheers of returning climbers, who have put all the great mountain beneath their feet! As one entering a new life, wondering, we push on down the trail toward a little patch of white tent where a wavy column of smoke ascends in the still air.

And thus it was in the Rainier National Park on August 3d, 1914, while still convinced that life in Camp Riley at Mt. Adams the year before was the superlative of holiday joys, and the camp-site itself the standard of beautiful location by which all future camp-sites should be measured, we came to the rim of the western wall of Mystic Park and discovered below a smiling, radiant little valley, the fairest of all which even so opulent a host as Rainier had to offer.

On one side "Old Desolate" towered, barren, rugged, fascinating in his sheer unloveliness. Opposite Mineral Park lifted his protecting towers and sharp pinnacles to the sky. Between was swung gently-undulating meadows of flowers, patterned with groves of pointed fir.

At one end rose a low heather-covered barrier, ridge silhouetted, against a veritable world of gleaming ice and glistening snow-field and

Interesting persons and places. Insert above, P. B. Van Trump (photo W. G. Hathaway), first white man to climb Mount Rainier. 1—From its bleakness it might be near the South Pole (R. L. Glisan, photo). 2—George X. Riddell, chief Mazama guide (T. R. Conway, photo). 3—A. Boyd Williams, assistant guide (Kiser photo). 4—Surmounting a bergschrund near the summit (photo copyright by Kiser Photo Co.). Insert below, Francis W. Benefiel, chairman of Mazama outing committee.

Camp scenes at Mount Rainier Outing, 1914. 1—The Wedding. 2—Frank Branch Riley, the greatest of camp-fire leaders. 3—"Bread Line." 4—Camp-fire group on "Circus Night." 5—Those important personages, the cooks: right "Doc" Weston, chef; left, Jack Benefiel, assistant. 6—The inimitable Riley as "Shylock." 7—The "Circus Performers."

painted cliffs which loomed up and filled the southern sky. At the lower end of the Park, beyond a little shimmering lake, crystal-clear and ice-cold, the valley floor descended by gentle natural terraces to a deep chasm where the west fork of White River, just released from its glacier, plunged and roared. An alluring and hospitable base for adventure and exploration!

And two weeks later, when the last pack horse had struggled up the trail home-bound, restoring the tiny valley to its ancient solitude, we were to record that "Camp Prouty" had abundantly maintained the Mazama traditions for heroic achievement on the mountain, and sprightly entertainment in camp.

The first day was devoted to animated camp-building. Everywhere al fresco bedrooms waited; and springy mattresses of moss were laid under giant trees on the hillsides, by the lake shore, or at the edge of the brawling streams. The individual camps were promptly christened; there were "bachelor halls," various "retreats," a "Parlor A," and "Hanging Garden" and a "Mystic Inn." The center of the camp life by day was the commissary and the long dinner table, and here the pioneer Mazama cook, Col. James Weston, and his associates, served an amazing cuisine of such delicacy and variety as did all but spoil the illusion of a life in the wilds. It is astonishing what an outfit can be transported out of your world on pack animals 24 miles over lonely, steep and winding trails. With fine efficiency, the product of long experience and an almost fanatical devotion to the game, the outing committee offers you the maximum of camp joys and comforts, with the minimum of individual responsibility and effort. There was even "music with our meals." On the broad back of a little burro had come a talking machine. Great opera artists sang to the accompaniment of the boom of avalanches falling over Willis Wall; concert orchestras blared out Wagnerian overtures, or with tantalizing syncopated melodies, set even the tired feet of the all-day hikers shuffling.

Life in camp was a joyous riot of democracy. Reduced to frank equality in dress and general appearance, we were none the less so in spirit. Titles and formal salutations were forgotten. College presidents, eminent surgeons, celebrated naturalists, and men of letters, were, for a time, mercifully spared that deference which it is their lot to endure in class room and clinic; they answered promptly to their nick-names, and helped to select appropriate sobriquets for the others. City dwellers, who for years had observed a perfunctory acquaintance, came to happily know each other for the first time.

Strangers, attracted by a common love of the mountain, cemented friendships that shall endure.

Mountain climbing is character building. We have a saying: "There can be no selfishness above 5000 feet;" and we cleanse our hearts of other petty meannesses in the vitalizing air at timber-line. In fact, the "getting out of one's self," or the "being one's real self" as you like, the joy of shedding for a time the veneer of conventions and artificialities which it seems so important to keep intact and polished in the make-believe world of paved streets and box houses, is at least one sufficient answer to the familiar question: "But why do you climb a mountain?"

Our life was delightful in diversity and contrasts. We made bold excursions up into the high seracs and upper neves, exploring the glaciers seared and ripped with treacherous crevasses; toiled all day on knap-sack trips, returning at night to match stories of the neighboring peaks, cataracts and caves; and on lazy afternoons in our out-of-doors "theatre," staged surprising stunts of delicious foolery.

One day we accepted the challenge of the overwhelming mountain, turned our faces toward the dome of the sky, and after a two-day assault on one towering rampart after another, victoriously gained Rainier's loftiest escarpment of ice and snow; and on the following evening, in ludicrous costume, did utterly whimsical and ridiculous things around the camp fire.

At night, about a huge pile of blazing logs, the hikers are ranged in great circles, and the fun begins. These evening "camp-fires" have become a Mazama institution, and the entertainment features grow more varied and elaborate each year. Often the events for the evening were bulletined at the Headquarters Tent during the day, but some of the biggest features were so completely the result of sudden wit and spontaneous execution as to allow no time for warning or announcement.

In many "shows" every one in camp had some role to play, and none were left for "audience." Talents, unsuspected and dormant at sea level seemed fairly to scintillate at 6000 feet. A great "choir" sang stirring choruses and serenades. Quartettes sang bits of opera and topical song. We were blessed with soloists, notably Miss Annie Reid of the Canadian Alpine Club, and Miss Nellie Crout, dainty coloratures, and Keith Walker, robust baritone. Howard Vernon of New York gave monologues, and there were story-tellers and dramatic readers in abundance. Richard W. Montague eloquently told of the Waste of War. The news of the incredible conflict in

Europe, then just beginning, trickled in by pack train and seemed even more unreal up in our ultimate valleys and silent peaks.

Scientific Mazamas, including Dr. C. Barck of St. Louis, President W. E. Stone of Purdue University, and Dr. Francis B. Wynn of Indianapolis, and well-known alpinists like B. S. Darling, of Vancouver, B. C., gave informing lectures which were followed by useful discussions. The events of the day, and the foibles of the members were retailed in rhyme and song. Rival choirs bombarded each other with original ditties. Wit and badinage flashed about like wireless.

Leaders of exploring parties gave entertaining and sometimes suspicious reports of the day's adventures. Birthdays of Mazamas in camp were celebrated with joyous ceremonies, or solemn lamentations! One night in the fire glow, Jerry Bronaugh visualized "The Squaw Man" from Robert W. Service's poem, with Miss Ethel Freeman as the faithful squaw—an original conceit and the "first time on any stage."

Three Mazama pseudo Shakespearean actors, in ingenious costumes, which, though improvised from the contents of dunnage bags, truly suggested the dress of the characters, gave scenes from "The Merchant of Venice" in the glare of "spot-lights" supplied by electric flash-lamps in the hands of the audience. On one afternoon, a fashionable "Reception" was tendered all members who came from points outside Portland. The affair was rigidly formal, with a policeman and negro page at the door, French maids in attendance, and a dignified receiving line of club officials. Sun-burned society favorites "poured" and Chef Weston served a "collation."

One night when the successful members of the climbing party were to be decorated, it was suddenly decided that the guides should present them as a class for "graduation;" and the exercises were complete with diplomas, class songs, a class motto: "I lifted my brow over the 'Prow' ", and a Commencement Address by Dr. Stone, the like of which was never heard on a college campus!

A bizarre circus performance was enjoyed at the circus grounds on a ridge above the camp. The talent had a half day to prepare for it, and no feature of the regulation "Biggest and Best," seemed to be missing. There were lemonade and after-show ticket vendors, "hayseed" visitors, lady slack-wire artists and bare-back riders; zoological specimens and their trainers, and an "egg-eating ant," all dominated by Eddie Sammons in immaculate Ring-Master attire. Above, in the moonlight the mountain looked down indulgently; for he had set a grim task for these merry-makers on the morrow. And these grown up children who at night cavorted as "bears" and "orang-

outangs," slow-moving "horses," and fluffy equestriennes, the next morning, up in a wilderness of ice and snow, in silent, resolute roped-up columns were establishing a new record in northwest mountaineering.

And having achieved a feat so strenuous, if not perilous, they swung gracefully back to the work of producing the climax of Mazama spectacles—the elaborate ceremonies attending the "wedding" of "Rube Sourdough" and "Spray Sluiskin." Nothing else had been talked of all day. There were really two shows, for the guests, sensing the fun, arrived in costume, each playing a part. There came social leaders, poor relations, and the immediate families of the contracting parties, disappointed suitors, critical and gossipy friends. Well-groomed ushers were busy. In the tense moment preceding the ceremony, an attenuated tenor sang "O Promise Me."

The bride and groom were respectively, John A. Lee and Rodney L. Glisan—on the mountain, safe and stalwart guides; in town, serious men of affairs. The bride was a vision—a huge vision—of the traditional blushing variety of loveliness, with an elephantine grace; and the groom was a thoroly frightened but otherwise romantic figure in the costume of a gallant of 1830. But there was nothing burlesque or make-believe in the beauty and charm of the Matron of Honor, and the Maids. The audience gasped in genuine admiration as they filed down the isle in modish gowns and hats—elaborate crepe-paper creations—and harmonizing bouquets. Inasmuch as no guests were admitted without wedding presents, the assortment of gifts and the accompanying inscriptions was a sensational feature.

The night before camp-breaking the events, strenuous and gay, of the outing were reviewed; there were tributes for the leaders, and congratulations for all; and in the fading glow of the last camp-fire we sang "Auld Lang Syne." Next morning we hit the trail for 24 miles back to the first out-post of civilization.

And now can you match this holiday anywhere! The blood-tingling air, the beauty of valley and grandeur of peak; the vigorous exercise, the unconventional "camp-fire;" the fun and the instruction, and the friendships made; and the memory of it all for refreshment and inspiration during a long winter in your shut-in world.

This is the life!

Photo by Dr. W. E. Stone, Lafayette, Ind.

This photograph, taken by Dr. Stone August 4, 1914, from the Sourdough Plateau, is a most wonderful view of the east side of Mount Rainier and, the editor believes, is the best ever published. Along the skyline, left to right, are the Frying Pan Glacier, Little Tahoma, Gibraltar Rock, Columbia Crest, the Saddle between Peak Success and North Peak, Russell Peak and Willis Wall, which is at the head of Carbon Glacier. In the left foreground is the Emmons Glacier, the largest glacier in the United States; it has an average width of 2 miles and is nearly 8 miles long. In the right center is seen Steamboat Prow or the Wedge, showing Inter-Glacier. At the right between Steamboat Prow and Willis Wall is Winthrop Glacier, over which the Mazamas traveled to the summit of the mountain. Inter-Glacier is a hanging glacier on Steamboat Prow between Emmons and Winthrop Glaciers and not connected with either, nor with the ice cap on the summit. The route of the Mazama ascent was up the Winthrop Glacier from the extreme lower right of the picture to the head of Steamboat Prow where the night was spent. Next day, an almost direct route of travel between the point of Steamboat Prow and the Saddle, as appears in the picture, was followed.

Photos by W. E. Stone, Lafayette, Ind.

A trip to Lodi, Loveliest of Valleys. 1—At lunch, Skyscraper Peak in distance. 2—Lodi Creek near its source. 3—Rugged guardian walls of Lodi Valley. 4—Knapsacking up Lodi Valley, showing carpet of flowers. 5—Van Horn Falls. Trout abound in the pool below the falls.

Lodi Valley

By Richard W. Montague.

On Wednesday, August 4, John A. Lee, Dr. W. E. Stone, president of Purdue University, and the writer, set out on a trip to Van Horn Creek, with a view of spying out the land and incidentally trying fishing in the creek. The party followed the trail from the lower end of the lake to the point where it disappears on the terminal moraine of Winthrop Glacier, and thence made the best of their way down White River, at times in easy-going through the open timber on the banks of the stream; at times through dense thickets of Devil's Club, alder saplings and other underbrush, climbing at times from ledge to ledge over the precipitous "points" or promontories that jut out into the river, and again along the gravelly bottom of the river itself, where, in little mud flats, the tracks of deer and bear were so thick that, as one of the party remarked, they looked like barn-yards. The gorge or dalles of the river, where it pours its full volume through a narrow and perpendicular canyon, was passed on the left or westerly side, which was said by others who traveled the same ground, to be the more difficult.

Well on in the afternoon the party struck the trail which leads a short distance up the river from Van Horn Creek. Arriving at the creek a comfortable site for the night's bivouac was selected in the timber near the bank, and one of the party built a fire on a little gravel bar running out into the stream, while the others fared forth in search of fish for supper. Their efforts were successful, and the fine trout which they brought in were consumed with the zest which only comes to tired men who have earned their supper and got it in like manner. Trout, both Cutthroat and Dolly Varden, abound in the pools and riffles of the stream, and especially in the deep and wide pool at the base of the falls. Two or three hours' fishing was enough to supply the larder for the remainder of the three days' trip. They ranged in size up to a pound or better. Huckleberries, which were found in great abundance, made the fare exceedingly sumptuous.

Barely half a mile from the mouth of the creek, where it mingles with the milky waters of White River, are the falls. These are probably not more than 100 feet in height, but by reason of the large amount of water descending and the fact that the cliff down which they fall is convex in shape, spreading the cascade into a lacy film, they are very beautiful and impressive.

Next morning was spent in fishing and exploring the falls and some little lakes above them, and after lunch the party proceeded up the trail to the river crossing, half a mile above, and thence on the other side of the river upward to Grand Park. The 2500 feet or so of elevation between the river and the park is reached by an admirably-built trail, rising with a quite uniform grade as gentle as the climb which had to be made will permit.

Grand Park was found to be a fine plateau of great extent, about one mile by three, as indicated on the maps, presenting charming views of meadows, and basins which earlier had evidently held little snow lakes, set with groups of juniper and spruce trees, so gracefully arranged and opening such pleasing vistas that it is hard to believe that the art of a great landscape gardener has not been employed upon it. Its chief interest, however, is in the superb view of Mt. Rainier, which is had from its southerly edge, where the overpowering splendor and greatness of the mountain are brought out by a series of nearby peaks each itself of great height and impressiveness, and yet all inclosed within the vast and sublime sweep of the skyline of the great monarch. By this time the sky was beginning to be overcast and a driving rain and mist was coming down through the gap beyond at intervals, so that the party hurried on and made a snug bivouac in the lower end of the Lodi Creek Valley.

The next morning the march proceeded through the Lodi Creek Valley, the beauty and delight of which is due not only to the limitless abundance and great variety of its flowers and the singing streams that leap down every bank and brae, but to the singularly noble and majestic outlines of the cliffs which inclose it and the graceful slopes which sink from them to the stream.

Leaving this place, which at least one of the party believes to be his nearest approach to paradise, the route lay across a ridge and over a plateau, known as Sourdough Mountain, which, lying at an elevation of 7500 feet, commands an incomparable view of the tumultuous and terrible peaks extending far to the east, of Mt. Adams over the shoulder of Rainier, and of Little Tahoma, Gibraltar Rock, Inter-glacier, and far below, Emmons Glacier and the trail leading through Glacier basin to Starbo Camp and St. Elmo Pass, with the great mountain overtopping all. Thence the return was made down a slide from the top of the ridge above the foot of Winthrop Glacier and across the river by a log bridge, which was laid with no little hard labor after a few minutes' inspection of the roaring torrent and of listening to the great boulders which it grinds and tumbles in its bed had aroused an earnest and heartfelt distaste for fording the stream.

So delighted were these voyagers with the Lodi Creek Valley that subsequently Dr. Stone led over there a party including Mrs. Stone, Miss Louise Almy, Miss Mildred Stanford, Mr. Eddie C. Sammons, Mr. H. H. Shanley, Mr. H. G. Johnson, Mr. Wheelock Marsh and Richard and Caroline Montague. This party crossed White River at the log bridge, climbed out of the valley of the river by way of the timbered ridge rising steeply from its bank, and crossing the valley of Granite Creek, dropped to Lodi Creek. There they made camp on a little knoll, where a dense thicket of young spruce and cedar, with hospitable openings for bed and camp-fire, afforded shelter. One of the pleasant incidents of the excursion was the sight of a beautiful young buck, which came loping down a ridge to within less than 100 feet of the party before he saw them. When startled he made away with light and airy leaps of a glorious speed that drew from one weary way-farer the exclamation, "Lord, I wish I could travel like that!"

The first afternoon the party, after selecting their camping site, went on down the trail to Grand Park and returned to camp. The next morning they followed the trail to the upper end of the valley, meeting the pack train of a party of excursionists who had come through by way of Frozen Lake from Enumclaw. From Sourdough Mountain they swung to the south and west across a long shale slope of loose rock that tried shoes, temper and endurance nearly to the limit. Then ascending the main ridge to its crest above the St. Elmo pass at an elevation near 10,000 feet, they crossed over by the next notch below it, thence down the steep rock slope to the Winthrop Glacier, where a carefully-laid course, avoiding the difficult crevasses, brought them, neatly and accurately, greatly to the credit of the leader, to an intersection with the trail which the main party had made across the glacier from Steamboat Prow. From thence it seemed but a step to Mystic Lake, and dinner, more elaborate, but not more keenly enjoyed than the frugal fare made rich by the clever cooks, the "laughter and kind faces," of the bivouac in Lodi, loveliest of valleys.

Trip to Spray Park and Falls.

By A. Boyd Williams.

Wednesday, August 5, a party numbering 37 persons, led by A. B. Williams, left camp at 8:15 A. M. for Spray Park and Falls. Although one of the most strenuous hikes taken during the encampment, this trip proved to be one of the most interesting and enjoyable. The route led across the Carbon Glacier from Moraine Park, thence over ridges of rock and shrubbery. A number of snowfields were encountered, greatly relieving the monotony of the loose and tiresome rock climbing. All of the unpleasant features were forgotten as the wonders and beauties of nature constantly increased as we progressed.

Arriving at the summit of a ridge we would be rewarded by seeing a waterfall, sparkling in the sunlight, dashing down over the rocks to the level of the canyon below. Working downward and across the canyon, we came upon beautiful flowers in such abundance and variety that we were loath to leave them for the climb up the other side. The higher points, of course, afforded the best views of the surrounding country.

About half way to Spray Park we passed Observation Rock and Echo Rock, but did not climb either owing to lack of time. At this point, a few of the party turned back to camp, as it was then nearly 12 o'clock, and it was obvious that to go on to the park and falls would necessitate our being away from camp when Chef Weston rang the bell for 6:30 dinner, which is quite a serious matter to a crowd of hungry hikers. Minus those with the ravenous appetites, we pushed on to Spray Park, arriving there about 2 P. M. Here there was another dividing of the ranks, some returning to camp and others remaining at the park. An even dozen of us, determined to reach the Falls, hiked down the remaining half mile, which is at quite an incline, and required nearly an hour of arduous work. The beautiful Spray Falls (rightly named), dashing over the rocks from a height of about 600 feet, amply repaid all for their efforts.

After resting for a few minutes in the shower of fine mist thrown out by the falls, we started on our return to camp and hot soup. It being necessary to go back by the same route, we did not linger by the wayside, and at 8:15 P. M. we marched 23 strong in front of the cook tent and demanded in no uncertain tones that we be fed, and fed we were. Although exceedingly tired from 12 hours of most strenuous tramping, all in the party exhibited a cheerfulness and buoyancy typical of all true Mazamas.

Photo copyright by Kiser Photo Co., Portland.

Amphitheatre of the great Carbon Glacier, showing close view of Willis Wall. No other glacier has cut so deeply into the side of the mountain. The Carbon cirque is nearly 3 miles wide. Willis Wall is more than 4000 feet high and is nearly perpendicular. Avalanches fall day and night from the snow cap on the summit, and are awe-inspiring sights.

Photo copyright by Kiser Photo Co., Portland.

Cloud Cap on summit of Rainier. View is from floor of Mystic Lake Park with Mineral Mountain on the left.

An Ascent of Mt. Sluiskin.

By W. E. Stone.*

From various high points in the region of Camp Prouty two sharp rock peaks were observed rising to the northward of Mt. Desolate, and challenging the ambition of aspiring Mazamas, but apparently the seductions of Spray Park, Lodi Valley, Van Horn Creek and the great mountain itself diverted attention from these otherwise attractive pinnacles. On August 15, the last day in camp, as an antidote for ennui, Mr. B. S. Darling and the writer set out to make a nearer inspection of these interesting twins. Following the camp trail back to the head of Moraine Park, we skirted the western slope of Mt. Desolate, traversed an open, barren plateau covered with shingly rock and snow patches, crossed over a high ridge, apparently an extension of Desolate to the northwest, and dropped down into a park-like and beautiful valley, on the far side of which were the objects of our excursion. This was a very interesting spot, of which a green, flower-bedecked meadow, with clumps of evergreens, a clear stream, a little lake and innumerable goat tracks, were features.

The twin peaks rose abruptly from the valley, the lower slopes consisting of rock debris, but higher up, rising into sheer perpendicular walls which from below seemed quite impassable. Leading up to the saddle between the pinnacles rises a steep talus of granite blocks, up which the scramble with the sun on our backs was decidedly warm work. The easterly peak was noticeably higher than its mate and to this we turned out attention: circling around the north side to the eastern face where we encountered only about 100 feet of interesting work, bringing us to a comfortable bench and a breathing spot Girding ourselves for renewed effort, Darling drew himself up over the elge of the rock and exclaimed, "Here's the top." To our surprise the anticipated difficulties did not exist. One hour of easy work from the meadow below had put us on the summit of what had promised to be a difficult ascent. The summit of the peak is nearly flat, a few feet across and here in a crumbling pile of stones we found an almost illegible record of an ascent by the Mountaineers in 1909.

The view, which was sadly obscured by smoke, is, under normal conditions, very fine, particularly of Mt. Rainier. From this altitude (about 9000 feet) its height and grandeur are unusually impressive.

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We came down to the saddle by a different route on the north side, coasted down the talus to the meadow, followed the creek to the edge of the White River Valley, down into which we dropped nearly as rapidly as the stream, and soon struck the trail from the lower end of Winthrop Glacier back to camp, arriving in time for lunch. The entire trip, encircling Desolate, making the ascent and return by way of the White River Valley, required five and three-quarter hours and well repaid the effort.

Walk It Off.

When the cares of earth oppress you,
When the ills of life distress you,
When futilities impress you,
Walk it off!

When the future's grave and graver,
When the past has lost its savor,
When the present finds no favor,
Walk it off!

That's the sport that legs were made for,
That's the purpose roads were laid for,
Well or ill, in debt or paid for,
Walk it off!

THOMAS TINKER.

Mystic Lake to Paradise Park.

By R. L. GLISAN.

The main camp was scheduled to close on the 15th, and on Friday, August 14, Marsh, Lee and I started from the main camp at Mystic Lake at 9 A. M. on a knapsack trip to Paradise Park. We carried sleeping bags and three days' provisions, besides camera, etc. My pack weighed 32 pounds and the others about the same.

Instead of taking the route followed by the Mazamas on their way to Steamboat Prow, we bore easterly towards Winthrop glacier, and then up the ridges intersecting the Steamboat Prow trail as it started across the glacier. Instead of bearing upwards towards the Prow, we took a diagonal course downward across the glacier to intersect the miners' trail leading to St. Elmo Pass, which showed dimly on the opposite slope. Two-thirds of the way across the glacier we came to wide and deep crevasses all slanting towards the south slope and so broken up that we could not cross. We tried in vain first one ice tongue, and then another, often crossing on ice bridges. It was interesting and we could easily have spent hours peering down into the depths and admiring the chaos of contorted ice walls, but time was valuable. So giving up the hope of crossing here, we worked up to a more level strip above, and here we picked our way across, taking lunch at 1:30 near a huge conglomerate erratic on the east edge of the glacier. This stone, as large as a small cottage, was supported by a surprisingly small point of ice.

After lunch we went up the slope, climbing over loose rock, the trail proving somewhat of a farce. Going up a steep snow strip, and then up the rocky slope above, we made St. Elmo Pass. We stopped at the pass some time, absorbing the view. From this vantage point we could look back from whence we came, looking over Winthrop and Carbon glaciers, and on beyond; turning, we gazed down over Inter-glacier and beyond to the Grand Park country; while continuing the ridge we were on, Sourdough Mountain rose as though inspired by magic yeast to fill the heavens above. So much for the inspiration created by the name. It was a most impressive view, nevertheless.

Leaving the pass, we took the zig-zag trail down the loosely-shifting rock, taking a short cut occasionally. On the bench above Inter-Glacier we passed an abandoned copper mine, the entrance boarded up and a stream of water pouring out of the tunnel. At 4:15 we

the rim above the deep-set canyon, where the Ingraham Glacier joins the Cowlitz. Just below the rim, at the head of a narrow falls, we startled a mountain goat, which disappeared. Here at 2:30 we had lunch, and were rewarded by a partial view of the glacier far below and the Cowlitz River coursing through timbered canyons towards the blue ranges beyond. Before we could locate a route, the clouds closed in again. Several times we tried the descent, working down through closely-matted Alaska Cedar until the descent became too abrupt, and we could see no friendly tree tops visible in the gray blanket beneath us.

Despairing of reaching the glacier in the fog, we turned back; went down the rim, and at 7 o'clock selected camp on the southwest edge of Cowlitz Park, at the same elevation as the previous evening, judging from the trees and flowers. Plenty of dry wood and a friendly clump of hemlock and abundant water, we made ourselves comfortable.

August 17, Monday, we called this camp Oatmeal Camp—that being the sole remnant of our provisions, save for several stray pieces of bacon. At 7:40 we were again on the move, the fog being somewhat lighter than the day previous.

Going down grade, bearing gradually towards the canyon, we soon came out on a more open slope, where huckleberry bushes grew in luxuriant profusion. As we descended, the berries grew riper and larger. All the armies of Europe could have feasted on berries for some time without depleting the supply. So in spite of our repeated attacks, we were finally obliged to retreat, leaving a few berries untouched. As a precaution, we filled our canteens, and several days later, at the Coast, I supplied the contents for a juicy pie from the aforesaid canteen.

The mist had darkened the sand and dust on this slope, and goat and bear tracks showed sharply defined, made without doubt that morning, and undoubtedly we were silently observed as we raided the huckleberry bushes.

At 11 o'clock we reached the river's edge, or canyon's edge, for the river lay in a deep box canyon, and we were obliged to work up the edge, having come down further than necessary, the fog depriving us of any bearings. As we worked up the ledge through the heavy timber and came out on the moraine, the fog lifted and gave us a wonderful view of the Cowlitz River emerging from under the glacier, with Rainier high above. Picking our way over the rocks, up the side slope of the glacier, we came to Basaltic Falls which, starting from the rim above in a series of drops, fell fully 3000 feet.

Looking up that stupendous wall, we could see why we had failed to secure a route the day before. Closer observation disclosed our previous day's lunch place, marked by a slanting tree at the head of a narrow falls; below it, the canyon wall dropped fully 1200 feet, sufficient evidence as to our failing to see any tree tops when peering down into the fog.

As we stood there looking up, we saw a large mountain goat walk across a green patch part way down the wall, his white form in vivid contrast with the green.

We crossed the glacier several hundred yards beyond the large falls, having no difficulty—the glacier being rock and dirt-strewn, but without any wide crevasses—and went up the opposite slope into a diminutive mountain meadow, then turned and followed up a ridge, which is an old moraine lying between the glacier and the canyon wall beyond. We followed the ridge up to the curve of the main wall, then went up a steep snow slope and up a heather-covered ridge where dwarf huckleberry bushes thrust ripe berries out through the heather.

Looking back across the glacier gave us a view difficult to duplicate. Impossible to adequately describe, it combined the grandeur of the Yosemite with its beetling cliffs and high falls, and in addition to all the Yosemite had to offer, was the majesty of Rainier above the frozen water-fall where the glacier overhung below Gibraltar, and the frozen river below where the glacier twisted down into the deep-set canyon it had created for itself.

Continuing on the course outlined on the contour maps, our compass still in hand, we crossed a small, high-hung snowfield to the ridge above Stevens Glacier. Here we looked across to the Tatoosh Range in the late afternoon, and up towards Gibraltar, thrusting its solid front out from the mountainside. A steep, loose-rock slope brought us to the glacier, which we crossed just above the crown, avoiding several half-hidden crevasses. Beyond lay Paradise Glacier, which is more like a large snowfield, being in fact fed by the Winter snows which fall in the Amphitheater Basin, below Gibraltar.

Bearing diagonally across the glacier, we came to the head of Sluiskin Falls. Here we saw trails deep sunk, showing tourist travel. We secured a sweeping view of the falls and the Government road winding across the Paradise Valley below, and going up the right side to Rees' Hotel on the bench above, flanked by rows of white tents dotting a dark green background.

At 7:30 we reached Rees' Camp, 5557 feet elevation, and dropped the packs we had carried with hardly a rest for 12 hours. After dinner we visited the camp fire and chatted with Joe Stampfler, the

guide, who told us the proper crossing for the north side of the Cowlitz Canyon was high up where the ridge met the mountain. We were a day and a half later in making the trip than we expected, due to the fog, but the time was not lost, as we saw far more than we could on a hurried trip, especially around the Cowlitz Glacier.

Tuesday, August 17, we arose at 5:30, took the trail down by the Nisqually Glacier, across the bridge, and then following road and trail alternately, reached Longmires, six miles by trail or twelve miles by Government road. We breakfasted at the old hotel, secured seats in the auto stage leaving at 7 o'clock, and stopping to pick up several passengers at the new hotel, we passed through the National Park and the Forest Reserve boundary gates and came on down to Ashford, taking the 8:30 morning train for Tacoma, and making close connections there for Portland.

This trip is far more interesting than the ascent of the mountain, and I cannot conceive of a more fascinating outing for anyone who enjoys roughing it and is accustomed to the mountains.

The Mountain.

"'Round its breast the rolling clouds are spread,
Eternal sunshine settles on its head."

GOLDSMITH.

Photos by R. L. Glisan, Portland.

Scenic features near Mazama Camp, Mystic Lake. 1—White bark pine, last outpost of a splendid forest on slopes of Mountain Rainier. 2—Falls and Cascades of Lodi Creek. 3—Spray Falls, which drop more than 500 feet into canyon of North Mowich Glacier. 4—Mazama bedroom on Steamboat Prow, altitude 9800 feet.

Photo by R. L. Glisan, Portland.

Basaltic Falls in Cowlitz Canyon. The canyon rim is estimated to be more than 3000 feet above the glacier. The portion of the falls in the photograph is more than three times the height of Multnomah Falls. The tremendous height appears on noting sizes of the trees on the left wall.

Photo by R. L. Glisan, Portland.

Fan-shaped snout of Cowlitz Glacier, birth of Cowlitz River [This river flows into the Columbia below Portnd.], and Mount Rainier in the distance. The debris-covered ice wall is more than 100 feet high. Cowlitz anyon is one of the grandest scenic regions on Rainier.

Photo by R. L. Glisan, Portland.

Flowers in Summerland, east side of Rainier. Rainier has more flowers than any other mountain in the United States, and Summerland, from its favorable location, is probably the choicest flower garden on the mountain. Species shown are mostly Lupine (*Lupinus Arcticus*), Asters (*Troximon Aurantiacum*) and Polygonum (*Polygonum Bistortoides.*)

The Mountain King.*

By Francis Barbour Wynn.

Mightiest Mountain height
Radiant by dazzling light
To thee we sing!
Clothed richly on this globe
Gorgeous thy snow-white robe
Splendor is thine abode;
We crown thee king!

Mazamas loud proclaim
Thy holy right to reign—
We tribute pay.
Thy claims are just and sure
Our love to thee is pure
It will for aye endure,
'Til Judgment Day.

Planted on Mother Earth
Whence sprang thy ruptured birth,
Thou standest there
Teaching posterity
Eternal verity
Though all eternity
To every heir.

No rule of space nor time
Canst measure thee, sublime
And mighty one!
Thou biddest man believe,
Press forward and achieve,
Look up and then perceive
God's work well done!

Thy moods do awe inspire
Thy mantling clouds of fire,
Entrance our gaze!
Or veiled in mist and snow
Gathering storms that grow
Or raging winds that blow,
All doth amaze!

The crashing thunders round
Thy cragged sides resound—
The Earth doth quake.
Still keepest thou thy poise
Unmoved dost thou rejoice
'Mid all we hear thy voice,
"Be calm and wait."

From fissured tongues of ice
Swift torrent streams arise
To bathe thy feet;
Then thread through forests green,
Watering rich beds of sheen
Decked by the flowers that teem
With perfume sweet.

Thus mother-love seems cold
When childhood's fancies bold
The laws would break.
Yet from her mountain heart
The streams so pure that dart
Feed woman's holy art,
And man doth make.

On flows her nurturing stream
Through childhood's life its gleam,
And into Youth;
Whilst on its banks there grow
Memory flowers that blow
With perfume sweet to know,
And teach the truth.

Glowing thy crest at dawn
Harbinger of the morn.
At break of day
Thou dost all animate,
Dispel the night of hate,
Our hearts regenerate
And teach to pray.

And by the dimming light
Or robed in sable night
Comes dreamy thought;
Charmed by thy mystic spell
Which over all doth dwell
And maketh each to tell
How wondrous wrought.

On wings of reverie
The soul from care set free
Swift takes its flight
The realms entrancing through
O'er fields of fancy new,
Fresh with the Heaven's dew—
Pure soul delight.

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*Read before the Mazama Club, August 10th, 1914, as part of the program of the Annual Outing.

The avalanches roar:
Thy chasmed sides they gore—
'Tis awesome night!
Their crashing sounds sublime
Are but the words divine
Commanding us 'tis time
To search for light.

No less appalling life
In the ignoble strife,
'Twixt man and man;
The darkening night of sin
Hides monsters that do grin
At struggles deep within
And seek to damn.

Or in less horrid mien
Thief-like they rob the brain
Of judgment just;
Falsehood with face so fair—
Scarce see her lurking there
Yet with the net to snare
Confiding trust.

There grasping avarice stalks
Stifling his conscience, mocks
The heart that feels;
Whilst myriads burdens bear,
Heart-aches and grinding care
Dark in the depths despair
Dire want reveals.

But through the night of gloom
The Mount of Truth doth loom
To show the way
To erring, wilful, blind,
Passion-tossed human kind—
The love by Christ divined—
A better day.

Across The Range from St. Helens to Rainier.

By B. A. THAXTER.

When the Mazamas decided to go to the north side of Mt. Rainier for their annual outing in 1914 the writer found to his great disappointment that the date set was at a time when it was impossible for him to join them. Being an ardent lover of the mountains and an enthusiastic climber, he began to consider various plans for a vacation later in the season that would take him to either St. Helens or Rainier, neither of which he had climbed. Some of the Mazamas, he learned, intended to make a hurried trip to Spirit Lake and climb St. Helens from the north side and then join the main body of climbers before they reached their permanent camp at the base of Rainier. Why not do something similar and climb both mountains, was the thought that suggested itself one day when various plans were chasing themselves through his mind. Why not go to St. Helens, make the ascent, and then strike across country to the south side of Rainier and climb that king of American peaks by the well known Paradise Park route? After much studying of maps he decided that the trip was a feasible one provided he could find a companion to go along with him. This he soon found in the person of Lindsley Ross, a Reed College student. We found that we had ten days that we could devote to the trip and we believed that we could carry out our plans in that time. Our old friend and fellow Mazama, Edgar E. Coursen, we knew was to spend the last week of his vacation at the Lange Homestead at Spirit Lake. We therefore arranged to meet him at Castle Rock on August 24th and go in and climb Mt. St. Helens with his party.

Our plans worked perfectly. On Tuesday night, August 25th, after a long tramp from Toutle, we reached Lange's about nine o'clock. On Thursday we made the ascent, and the next morning Ross and the writer left at sunrise for the trip across the forest to the mighty peak sixty miles away. We had never heard of anyone making the particular trip we contemplated and there was a beautiful uncertainty as to whether we could find our way across or not. We had learned in Portland from the Supervisor of the Columbia Forest that there were ranger trails that we could undoubtedly follow a part of the way but whether they were marked plainly enough for us to find them without trouble or not, he was uncertain. A ranger whom we had met on the road in to Spirit Lake had told us we could go across to

the Cowlitz River in a day. Others at Lange's scoffed at the idea and said it was foolish to try it at all, as none but experienced woodsmen could hope to find a way across. However, we were not discouraged by these conflicting reports but went on with our original plans. We had maps, a compass, provisions for several days, and, we believed, a fair amount of common sense. To save time we planned, instead of tramping all the way into Rainier National Park, to strike across to Kosmos on the Cowlitz River and then go on to Morton, the terminus of a branch of The Tacoma Eastern Railroad. From there we expected to ride in to Ashford by train and enter the Park by the regular route. We believed we could get across in two days, although we had no idea how long or devious our trail would prove to be.

The first four or five miles of our journey we covered very easily by taking one of Lange's boats and rowing slowly up the lake through the morning mists to the St. Helens Mining Company's landing. Leaving our boat here we slung our twenty pound packs over our shoulders and shortly after eight o'clock were fairly on our way. For the first half mile we followed a plain road which led to the once famous Ore Copper mine now abandoned. From this point by a good well-used trail we wound meanderingly up the divide between Spirit Lake and Green River, mounting higher and higher till we reached Norway Pass at an elevation of 4500 feet. Then we suddenly dropped down a steep trail for two or three thousand feet, passing through a magnificent forest of the Douglas fir. At Lange's we had got directions that would guide us to the Polar Star mine on Green River. We reached the mine about one o'clock and there learned, what we already had suspected, that we were several miles off our road. But they told us there that we could get across to Kelly's ranch on the Cowlitz either by climbing Goat Mountain and following along the crest till it ran out into the Cispus valley and then following that down to the larger stream, or we could go several miles farther to the east and find a route over the long crest of Strawberry Mountain. Our map of the Columbia forest showed an unused, intermittent trail over Strawberry Mountain but there was on it not the slightest indication of a trail over Goat Mountain. So we decided to go by the Strawberry Mountain route. About two-thirty in the afternoon we met a forest ranger who told us there was still a third way and that was to follow Quartz Creek straight down to the Cispus, but he said the trail was full of windfalls and very blind and he did not believe we could keep it. If once we could get to the top of Strawberry Mountain, he said we would have a plain, easy trail, but it would be no child's play reaching the top as the range was very steep. Following his directions

Familiar and unfamiliar scenes. The oval picture in the center is of a real Mazama, Rocky Mountain Goat (*Haplocerus Montanus*) and was taken in Glacier National Park last August by Raymond E. Coursen, of Portland. The other views are by R. J. Davidson, of Portland, and taken during the Mazama ascent of Rainier.

Photos by R. J. Davidson, Portland.

Scenes on the official climb. 1—Victory! At rest in the crater. 2—The saddle, 500 feet below the summit. 3—Nearing the saddle, Columbia Crest at left and North Peak right. 4—A big crevasse. 5—Crossing a dangerous ice bridge to gain the cornice above a bergschrund; elevation, 13,400 feet. 6—A wilderness of snow and ice.

we went on half a mile farther down Quartz Creek, passed Rhine Lake and then turned off directly to the east up one of the steepest hillsides I have ever climbed. It was about three o'clock when we began the ascent. Then for three hours we scrambled over windfalls and through underbrush at first, but as we got higher the ground cleared somewhat, and we pulled ourselves up now by a shrub, now by a jutting rock, and now again by a bunch of grass. The hot August sun beat down unmercifully upon our backs and there was not a drop of water anywhere with which to quench our thirst. To make matters worse the whole mountain side was honey-combed with marmot holes and we were constantly breaking through into them up to our knees. At last, however, after a climb as difficult and exhausting as that over the steep shale and pumice on the north side of St. Helens, we reached the top about three quarters of an hour before sunset. We estimated our elevation to be slightly under 6000 feet. Almost immediately we found the trail indicated on our map and pushed on toward the north. The clouds were settling down over the top of the mountain and we knew it would soon be dark. After a brisk walk of about a mile we halted in a little huckleberry patch and filled up on the berries to quench our thirst. Then we dropped down over the east side of the divide about five hundred feet to get out of the wind and made ready for the night. We had no blankets and it was now quite cold. Hurriedly collecting a few armfuls of wood we lit a small fire and spent the night before it. Early in the morning, long before sunrise, we had breakfast on bacon and huckleberries and were off. After an hour's tramp we came upon a little lake lying a few hundred feet below us and its water was indeed welcome. A mile or two farther on we passed another and there was no dearth of water after that. For hour after hour the trail now led down hill through a splendid forest. We had little difficulty in keeping it and noon found us in the valley of the Cowlitz. Then after going up Quartz Creek for half a mile we struck a trail fully as good as those in Macleay Park in Portland. This brought us out to Kelly's ranch on the south bank of the Cowlitz, about one-thirty in the afternoon. Here, right in the heart of the forest, we found a large clearing well-fenced, with a little house in the center of it surrounded by a fine vegetable garden and bright colored flowers. Mrs. Kelly gave us all the directions needed to find our way to Kosmos and we kept on down the river eight miles to the ferry where a small boy set us across, and we were out of the woods.

In the two days we had covered about forty miles. The rest of the trip worked out just as we had planned. We spent Sunday

night at Longmire's and on Monday went up to Reese's Camp of the Clouds in Paradise Park. From here we climbed Rainier the next day, September 1st, and we were back home in Portland late on the night of the 2nd. We had been gone ten days and we had succeeded in climbing both mountains as well as in finding a very interesting way across the range between them.

A Visit to Crater Lake and Fay Peak.

By Robert Ellis Hitch.

On the day after the official climb of Mt. Rainier, the writer, in company with Charles W. Howard, departed from our camp on the shores of Mystic Lake, crossed the upper Carbon trail, climbed the steep and rocky western slope leading down to the Carbon glacier, and edging along the Russell Glacier again descended over rising and falling ridges, through meadows and across gushing mountain streams, until we had almost reached Cataract Canyon, when we struck the trail leading from the snout of the Carbon to Spray Falls. Again climbing upward, we, after following the well-defined trail, were soon on the rocky and snowy ridge which divides Seattle Park on the north from Spray Park on the south, and which is the watershed between the canyons of the Carbon River to the north and the Mowich River to the south.

The journey to Spray Falls from this point, was quickly made through a succession of pleasant meadows, with a superb view of the mountain to the south, and the Mother Mountains to the north. These are a chain of some four or five miles in length, running in a south-westerly and northeasterly direction. Reaching Spray Falls, about six-thirty in the evening, we did not tarry a great while as our objective point had not been attained.

Following an excellent winding trail, with a deep canyon on the left and steep, heavily forested hills to the right, for probably three miles, we suddenly came upon Crater Lake just as the last rays of the sun were fading. This is a beautiful sheet of emerald water, almost circular, with a diameter of a mile. It nestles on the northwestern side of Mt. Rainier at the western end of the Mother Mountains, and has as its special guardian, Fay Peak, situate at no great distance to the south-east.

Beckoning to us, on the western shore of the lake, was a miner's cabin, and remembering that we had not dined since early in the afternoon, we hastened on the circling trail to this habitation, which, after a casual exploration, we dubbed "Frying Pan Cabin" for no other reason than that we counted not less than a score of these friends of the mountaineer. After our repast, we sat near our camp fire gazing first at the lake and then at the mountain, for in the meantime the moon had risen.

The next morning we were astir bright and early. Not half of the beauties of this body of water had been revealed to us. While going under the misnomer of Crater Lake, and thereby deceiving many persons to whom a name means much, and the origin of the object thus designated, little, it is unfortunate that the name is thus retained. Properly speaking, Crater Lake should be Cirque Lake, which in some measure at least would relate the history of its formation. F. E. Matthes, of the United States Geological Survey, in "Mt. Rainier and Its Glaciers," under the title "Crater Lake and the Empty Cirques at the Mountain's Foot," deplores the present name.

Certainly, an examination reveals that the lake is not the result of volcanic action and the scene of an extinct crater, but is the result of the gigantic action of a large body of ice such as is today visible nearer the summit of Mt. Rainier. In ages past when the snow line was much lower than at present, the hollow now filled with water, was being ground out by the ice which was the beginning of an immense glacier that descended in a southwesterly direction toward the valley of what is now called the Mowich River.

This is revealed by the precipitous shores of the lake on the north and east sides, while the south and west shores of the lake are comparatively flat, especially the southwestern. It is down the canyon which leads from the lake in a southwesterly direction, that Crater Creek, the one small stream draining the lake, flows. There are but two shallow spots along the shores, these being on the west near the cabin and on the south near the beginning of Crater Creek. These shelves are of solid rock and each extends about seventy-five feet from the shore line, and are covered with water not more than three feet in depth. At all other points the shore breaks into this bowl very precipitously. As the water is exceedingly clear, one is able to see to a great depth. There appeared to be neither vegetable nor animal life in the lake, and this is not surprising because of the solid rock and the depth of the water, and the impossibility of fish finding their way up the small, rapidly descending Crater Creek, their only means of ingress.

The same morning, we climbed to the summit of Fay Peak, one of the lesser promontories on the north slope of Mt. Rainier, being something more than seven thousand feet in height. Fay Peak is situate about a mile from the shores of Crater Lake in a southeasterly direction and is separated by a series of lesser ridges from the western extremities of the Mother Mountains. As the day was clear we were able to see Mt. St. Helens to the south, with a nearer view of the northwestern and northern slopes of Mt. Rainier. The peak is of rocky formation, with very precipitous sides and has a few scragly

Photo by Kiser Photo Co., Portland.

Echo and Observation Rocks above and west of Carbon Glacier. Note the twin falls on the right; also morainal debris on Carbon Glacier in the foreground.

Photo by Kiser Photo Co., Portland.

Sunrise Mountain (part of Sourdough Plateau) across Mystic Lake. Tents of Mazamas on shores of the lake.

trees growing on the south and west sides, while on the north and east the rocky slopes are covered with snow even in August, which continuously melts and gives to Crater Lake a great portion of her supply of water.

Our two-day sojourn at "Frying Pan Cabin" was pleasantly interrupted by the appearance, on the second evening, of Mr. and Mrs. W. B. Gleason, Seattle mountaineers, who were finishing a knapsack trip around the east and north sides of Mt. Rainier. After dinner together, they very kindly gave us most of their supplies, as ours had not been intended for so long a stay from camp, and they were soon to reach civilization over the "Grindstone Trail," to Fairfax. It was with regret that we left the cabin and "Cirque" Lake.

The Eruptions of Lassen Peak, Calif.†

By J. S. DILLER.

The recent eruptions of Lassen Peak have been a great surprise not only to the residents of the district, but also to most of the geologists who are more or less familiar with the decadent volcanic energy of the Cascade Range. It is generally considered the "land of the burnt out fires," and so it is; but although the fires may be out, there is much evidence of remaining heat in some places upon the summits of the great volcanoes, as in the case of Shasta and Rainier and in others about the base of the mountain, where basaltic eruptions are likely to follow around an andesite cone.

Of all the great extinct volcanoes of the Cascade Range, Lassen Peak is the richest in solfataric action. Southeast of Lassen Peak there are Bumpass' Hell, Lake Tartarus, the Geyser, and the Devil's Kitchen, beside many other hot sulphurous springs, all of which are exhibits of volcanic energy, and a short distance to the northward is the Cinder Cone, a national monument which marks the scene of one of the latest volcanic eruptions in the United States.

The accompanying illustrations give a vivid impression of the character of the late eruptions of Lassen Peak. According to the forestry service at Mineral, there have been 32 eruptions up to August 23. The eruption at 5:28 A. M. Saturday, July 18, is said to have been "by far the most violent eruption to date," lasting practically the entire morning and ejecting the dust to a height of 11,000 feet. The outbreak August 21 is reported as "one of the largest," continuing an hour and forty minutes, the column rising to a height of 10,560 feet.

On the morning of June 14, during the ninth eruption, which lasted about half an hour, the dust rose up to 2500 feet.

The crater increased in size with the number of eruptions. The view of the crater was taken June 20, after 11 eruptions. On July 23, after 24 eruptions, the crater was somewhat more than 650 feet long,* 100 to 200 feet wide and about 150 feet deep.

The material ejected ranges in size all the way from fragments four feet in diameter to fine dust. As the amount ejected at each eruption is small, only about ten feet in thickness of the rim is made of ejected material. Beneath it is a layer of snow that covered the place when the first outburst occurred, May 30.

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*Paced by W. H. Storms, June 21st, *Mining and Scientific Press*, July 25, 1914.

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The inner slopes are very steep and cave in frequently. A few large stones have been thrown more than a fourth of a mile from the crater. Most of the dust falls within a radius of a mile, but some has been carried by the wind as much as 15 miles to the southward, and the sulphurous fumes are said to have been recognized at about the same distance. A quarter of a mile from the crater, to the southwest, the sand and dust layer on the snow, July 23, was three inches thick, and being wet, looked, from a distance, black and peculiar on the white snow. When dry this dust is very light and easily carried by frequent whirlwinds into the air to make the mountain look as if it were smoking. Forest rangers who were in the neighborhood of the summit during eruptions heard the rushing steam and the falling rocks, but report no rumbling or subterranean noises, earth shocks,† electrical phenomena, or great heat beyond that of the escaping steam.

Considerable volumes of water were ejected, probably wholly in the form of steam. The water condensed as rain, but there was not enough of it to produce any marked effect by eroding the surface, and the phenomenon is in no proper sense a geyser *where water is the plug ejected by successive eruptions. In Lassen's new crater the plug is rock matter.*

Within the crater the yellowish surfaces suggest that sulphur is being deposited by the rising vapors as in the solfataras. No definite molten products have been found as a result of the recent eruptions of Lassen Peak. The dust sent to Washington was examined microscopically by H. G. Ferguson, who came to the conclusion that the dust afforded no evidence of recent fusion.

I examined the crater the second time July 23 and found it to be larger and emitting a greater quantity of steam more generally distributed over the crater bottom than on June 20, when the first examination was made.

During the ten days ending July 18 nine eruptions, including the two largest, have been reported by the forest service; while in the ten days previous there were only six eruptions of moderate size. During June there were 12 eruptions, and in July, up to the 19th, there were 11 eruptions. Although the records show increased intensity of volcanic action, there seems to be as yet no impending danger of a sudden disastrous eruption. The activity appears to be limited to a comparatively shallow depth at the summit of the mountain.

Nearly all the hot springs and solfataras about Lassen Peak have been visited recently and the common opinion found true that there

†William H. Storms reports a moderately heavy shock in the latter part of May. *Mining and Scientific Press*, July, 1914, p. 143.

is no evidence of increased intensity in the solfataras since the eruptions from the summit of Lassen Peak began.

The eruptions will probably end in establishing a solfatara on the summit of Lassen Peak, but it should be closely watched for earth tremors and evidences of deeper-seated action, and visitors should approach it with caution.

There are excellent views of Lassen Peak at a distance of about 50 miles, from the Southern Pacific trains between Redding and Cottonwood, especially at Panorama Point, a few miles south of Anderson.

The forest service at Mineral, W. J. Rushing, forest supervisor in charge, has an outlook station on Brokeoff Mountain, in full view of Lassen Peak, only a few miles away to the northward. Mr. Rushing's observers are on Brokeoff Mountain, a part of Lassen's oldest crater rim, continuously, and have an excellent opportunity to make a complete record of Lassen's activity, a service of great importance.

Lassen Peak may be reached from Redding, on the Southern Pacific railway, thence by motor to Viola P. O. and Manzanita Lake, but the motor trip is long and the mountain climb from the northwest is hard.

A better way is from Red Bluff, on the Southern Pacific railway, thence by motor to Mineral Postoffice, thence horseback 12 miles to the foot of the mountain, and an easy climb of about an hour and a half to the summit from the southeast.

The best way is from Drakesbad on the southeast, only seven miles from the mountain. Drakesbad, formerly Drake's Springs, is an attractive mountain resort in Hot Spring Valley, from which not only Lassen Peak but also Cinder Cone and other interesting volcanic phenomena may be easily visited.

Drakesbad is a thirty-mile motor ride from Westwood, the fine hoteled terminus of the Southern Pacific branch line from Fernley, Nevada, to Susanville. There is a through sleeper from San Francisco to Susanville on train No. 6.

The Western Pacific railway affords an easy approach by way of Keddie and thence by motor to Westwood, or from Doyle to Susanville.

*FOREST SERVICE RECORD OF ERUPTIONS OF LASSEN PEAK.

No. of Eruption.	Date 1914	Time P. S. T.	Character of Eruption.	Duration.	Size of Crater in Feet.
1	May 30	5:00 p.m.	Heavy	10 min.	25x40
2	June 1	8:00 a. m.	Hevier	15 min.	275x60 60 deep.
3	June 2	9:30 a.m.	Very heavy	30 min.	
4	June 8	4:30 p.m.	Heavier	40 min.	
5	June 9	10:30 a.m.	Heavy. Steam darker	30 min.	
6	June 12	3:45 p.m.	Heavy. Steam very dark	50 min.	400x100
7	June 13	6:00 a.m.	Ashes fell at Mineral. Heavy	30 min.	
8	June 14	6:00 a.m.	Unconfirmed. Reported by Red Bluff.	?	
9	June 14	9:43 a.m.	Altitude smoke, 2500 feet. Heaviest yet.	30 min.	
10	June 14	6:45 p.m.	Medium	15 min.	450x125
11	June 19	8:15 p.m.	Altitude smoke, 2000 feet. Medium	15 min.	600x150
12	June 29	3:00 a.m.	New snow covered by layer of ash	?	
13	June 30	11:06 a.m.	Heavy. Series of slight eruptions followed first. Altitude, 2800 feet	40 min.	
14	July 1	5:30 a.m.	Heaviest yet. Altitude, 5900 feet	50 min.	
15	July 2	6:50 a.m.	Very heavy	30 min.	
16	July 6	3:30 a.m.	Reported by Red Bluff. Heavy. Steam and smoke from entire length of the crater	30 min.	
17	July 13	3:07 p.m.	Medium. Air calm. Thin column of steam rose to height of 1800 feet. Little ash visible. West end crater	40 min.	
18	July 15	6:05 a.m.	Very heavy. Of long duration	4 hours.	
19	July 15	12:05 p.m.	Greatest disturbance thus far. Exceeded previous eruptions in intensity and duration. Great quantities dust thrown out	Entire afternoon.	
20	July 16	12:30 a.m.	Very heavy. Volcanic dust fell at Mineral	Intermittently through early hours.	
21	July 16	4:30 a.m.	Heavy eruption	Several hours.	
22	July 17	6:00 a.m.	Heavy eruption. Volcanic ash fell at Mineral	Several hours. Several hours.	
23	July 17	11:47 a.m.	Heavy eruption	Several hours.	
24	July 18	5:28 a.m.	By far most violent eruption to date. Ash, steam, etc., rose to height of 11,000 feet	Practically entire morning.	
25	Aug. 10	5:30 p.m.	Medium. Small quantity ash thrown out	Continued after dark.	
26	Aug. 19	7:24 a.m.	Very heavy. Huge clouds ash thrown out. Height, 10,500 feet	4 hrs. 30 min.	
27	Aug. 21	11:10 a.m.	One of the largest eruptions to date. Entire crater active. Height, 10,560 ft	1 hr. 40. min.	
28	Aug. 22	8:40 a.m.	Heavy. Ash column shot up obliquely instead of vertically as in all former eruptions. Altitude, 7590 feet		
29	Aug. 22	12:40 p.m.	Heavy. Entire crater active. Height. 5940 feet	1.hr 20 min.	
30	Aug. 22	4:35 p.m.	Medium. Height, 6000 feet	55 min.	
31	Aug. 23	6:35 a.m.	Medium. Height, 5610	1 hr. 53 min.	
32	Aug. 23	7:43 p.m.	Larger than morning disturbance. Height, 5940 feet	Continued after dark.	
33	Sept. 5	12:23 p.m.	Medium. Full length of active crater. Height, 5600 feet	Four hours.	605x208 ft. C. H. Lee's measurements.
34	Sept. 5	4:25 p.m.	Medium. Larger quantities ash than morning eruption. Height 4,950 feet	1 hr. 35 min.	
35	Sept. 6	11:04 a.m.	Medium. Entire crater active. Height, 7,920 feet	3 hr. 55 min.	Crater reported to have widened considerably in west end.
36	Sept. 7	10:30 p.m.	Very heavy. Wind negligible, column dust ascended to great height. Rumblings awakened Lookout on Broke-off Mountain	Continued indefinitely through early morning hrs.	
37	Sept. 8	8:00 a.m.	Very slight. Began subsiding almost immediately after first outburst	Had not reached normal when second eruption took place.	

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FOREST SERVICE RECORD OF ERUPTIONS OF LASSEN PEAK.

No. of Eruption.	Date 1914		Time P. S. T.	Character of Eruption.	Duration.	Size of Crater in Feet.
38	Sept.	8	9:55 a.m.	Medium. Begin subsiding immediately after outburst	Normal had not been reached when third eruption of day took place.	
39	Sept.	8	10:25 a.m.	Medium. Slightly more ash thrown out than two preceding eruptions	Normal not reached.	
40	Sept.	8	11:35 a.m.	Heavy. Ash clouds enveloped mountain. Entire crater active	1 hr. 50 min.	
41	Sept.	9	4:20 a.m.	Medium		
42	Sept.	9	3:00 p.m.	Considered one of the largest eruptions to date. Heavy fall of ashes in Mineral and Lyonsville	Continued after sundown.	
43	Sept.	16	3:00 p.m.	Mountain obscured by clouds. Only indication of eruption was fall of ashes at Viola	Unkown.	Storm cleared on 18th., disclosing 3 new vents on W. slope, undoubtedly caused by eruption of 16th.
44	Sept.	19	3:10 a.m.	Medium	Short.	
45	Sept.	20	3:00 a.m.	Very heavy. Accompanied by terrific rumblings, followed by heavy vibrations	5 hours.	No change noted in vents.
46	Sept.	20	11:35 a.m.	Heavy. Rumblings and detonations heard at Mineral for first time. Ashes fell at Mineral	3 hours.	No change noted in vents.
47	Sept.	21	6:05 a.m.	Probable most violent eruption to date. Ash practically obscured sky from Mineral view-point		Vent nearest top on west slope considerably enlarged. Equal volumes of steam from both sides of mountain

Of the first thirty-two eruptions listed above there were sixteen with an interval between them of less than a day, six with an interval of between one and two days, two between two and three days, two between three and four days, and five with intervals of from five to twenty-three days. It is noteworthy that the longest interval, twenty-three days, followed the most violent eruption, and was succeeded by one of low intensity.

(Signed) W. J. RUSHING,
Forest Supervisor.

The list of eruptions and data concerning them given on the preceding page were kindly furnished by Mr. Rushing.

Supplementary Note, November 4, 1914.

The foregoing article was written in the latter part of August. Since then Mr. Rushing has reported 15 eruptions from the 33d, Sept. 5, to the 47th, Sept. 21, inclusive, which have been added to the list. Newspapers reported the 56th eruption Oct. 16th. They continue frequently and apparently with increasing vigor. "Rumblings" have been heard to a distance of 20 miles and slight but distinct shocks reported at a number of places. The shocks are due chiefly if not wholly to a different cause more or less closely connected with the active faulting about the northern end of the Sierra Nevada.

Flashes of light and balls of fire have been reported and samples of the ejected molten material are said to have been found, but as yet the reports are not satisfactorily confirmed. Whether Lassen's activity will finally yield a solfataric area on its summit, like those about its base, or become a more fully active volcano of the Strombolian type, or neither, is as yet not a matter of certainty.

J. S. Diller.

Washington, D. C.

Impressions of Mt. Lassen.

By Edward Boyce.

Dispatches from Redding, Cal., July 16, 1914, reported Mt. Lassen in a more active state of eruption than it had been at any time since volcanic disturbances were first observed on the mountain, about six weeks ago. Although these dispatches were somewhat exaggerated, the activity of the crater is well worth the trip, and one is amply repaid by a study of the country surrounding the mountain and the action of the crater.

On July 18, 1914, in company with Mr. H. E. Brown, who climbed Mt. Hood and Mt. St. Helens with me in August, 1913, I left Portland for Red Bluff, Cal., a station on the Southern Pacific 548 miles south of Portland, arriving there the following evening at eleven o'clock. The next morning we left by auto for Mineral Springs, forty miles east of Red Bluff, which is the first stopping place on the road to the mountain. Mount Lassen is sixteen miles from Mineral, and on horseback the round trip can be made in one day over a good trail without much physical effort.

The road from Redding on the Southern Pacific Railroad to the mountain is excellent, and in some respects better than the road from Red Bluff. Automobiles using the Redding road can approach closer to the mountain with less difficulty, and the hotel accommodations at Redding are good, which is a luxury after an auto ride of seventy miles over dusty roads.

From Mineral we proceeded to McKenzie's Ranch, eighteen miles farther, where we secured horses and crossed a low range near the base of Mt. Lassen to see some geysers that are in active operation on the northeast side of the mountain. These geysers are similar to some of the smaller geyser in the Yellowstone National Park.

On the evening of the 20th we stopped at Mr. Kelly's ranch, seventy miles from Red Bluff, which is an excellent stopping place for those who contemplate a visit to the mountain. It is more convenient than most of the stopping places because the ascent from there to timber line is easy and can be accomplished on horseback in a few hours.

The morning of the 21st was spent at the Devil's Hole, a small basin where numerous small geysers are in operation, many of them almost extinct. At twelve o'clock we reached timber line, one and one-half miles from the summit of Mt. Lassen. Here we had lunch, and leaving our horses, began the ascent of the mountain, which is not a

Photo copyright, 1914, by P. J. Thompson, Susanville, Cal.

Mount Lassen in eruption. This photograph was taken at Lees, 5 miles below Drakesbad, August 22, 1914, at 12:30 P. M.

Crater of Mount Lassen June 20, 1914.

difficult climb, reaching the top at two o'clock, where we remained until 4:30, studying the crater and taking pictures.

Mt. Lassen has an elevation of 10,439 feet, and is composed of four small peaks which form a basin where snow lies, winter and summer. The surface of this basin is probably 2000 square feet in area, and from the lowest point in the basin vertically to a point where water would flow between the peaks is between 75 and 100 feet, thus forming a lake of considerable size from which there is no escape for the water, unless it overflows the saddle between the peaks. The snow water confined in this manner may be accountable for the eruption, when the melting snow found a subterranean channel that brought it in contact with the formation that generates volcanic action.

The first eruption or explosion occurred in the center of the lake, and threw rocks and lava ash over the mountain peaks for a distance of 300 feet, penetrating the roof of a forestry lookout station located on the northeast peak, the highest point on the mountain, approximately 300 feet above the lake. This eruption caused many rents or crevasses in the earth's surface, which allowed the snow water to flow freely, thus causing the lava rock, ash, and gravel to become loosened and slide into the opening of the crater, obstructing the escaping steam; this caused other eruptions which opened the earth's surface in a southwesterly direction until it reached the north side of one of the peaks and there formed a vent which, owing to its elevation, is free from obstructions. These numerous eruptions in the basin formed a cavity 150 feet by 400 feet long, and probably 100 feet in depth, which is constantly filling up from the crumbling of the earth's surface around the edge of the crater.

The vent in the mountain side allows the immense volume of steam to escape under great pressure. Should this vent become obstructed below the surface from the constant crumbling of the earth around the edge of the crater, which, together with the melting snow, is constantly adding more weight to the millions of tons of loose rock in the crater, other eruptions will occur until an opening of sufficient size is formed to allow the great volume of steam to escape freely.

Each succeeding eruption enlarges the crater, for the weight of the accumulated rock so thoroughly packed by the melting snow offers greater resistance to the immense volume of steam than other parts of the earth adjoining the crater, which is cracked from the numerous eruptions of the past six weeks. At all events it is doubtful if any eruption of the future will equal in volume those that have changed this peaceful mountain lake of snow and ice to a rumbling, hissing caldron of steam.

The great volume of escaping steam issues from the north side of the southwest peak, fifty feet from the highest point, and the extension of the crater appears to be advancing into the peak, although we had no difficulty in traversing this small space of fifty feet between the opening and the summit of the peak.

Although the north side of this peak is shattered by the force of the eruptions, there are no indications of recent disturbance on the south side.

As is well known, the country for many miles around Mt. Lassen is volcanic, and the formation appears to be younger than that found at other points on the Pacific Coast; consequently an eruption such as occurred on Mt. Lassen could easily occur anywhere in that region under similar conditions, for there are numerous active geysers at the base of the mountain on the south and east side.

Contrary to reports, no lava or smoke issued from the mountain when the crater was in a state of eruption. The lava ash which issued from the crater when it was in action darkened the steam to such an extent that people in the distance thought it was smoke and thus the erroneous impression went forth that a volcano was in action. The lava ash on the mountain averages from four to eight inches in depth, and in such a dry climate when the wind blows this ash rises in funnel shape, which gives the impression of smoke at a distance.

The rent on the earth's surface caused by the eruption extends in a southwesterly and northeasterly direction, stretching northeastward from the edge of the crater two hundred feet, where the opening can be easily traced. From surface indications the recent eruption is a renewal of the former activity of an extinct crater.

The cause of this recent activity on Mt. Lassen, from a geological standpoint, has not been stated, but Prof. J. S. Diller of the U. S. Geological Survey, in company with other Government officials, is making a study of the subject, and his report will be of much interest, because no other man has devoted so much time and attention to this region as has Mr. Diller, and it is doubtful if there is anyone better qualified to give a scientific opinion on the recent activity of the mountain.

From general observation, one is led to believe that the action of the impounded snow water in the lake found a channel which brought it in contact with lime or other substances of similar character, thus generating the gases which caused the eruption.

A visit to this mountain is very interesting and easily accomplished. One contemplating the trip will find much for study and investigation, and will feel amply repaid for the time spent in that region.

Central Oregon's Volcano

By George Palmer Putnam.

Everyone who is even passibly intimate with volcanoes knows how Mt. Lassen disturbed California's equanimity recently. Very few, however, even among Mazamas, whose knowledge of things pertaining to mountains is reckoned superlative, realize that in Oregon, too, there was a notable seismic disturbance this past summer.

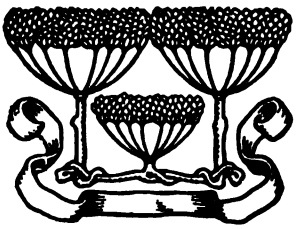
For on the afternoon of September seventh Lava Butte, in Central Oregon, some ten miles south of Bend, broke into eruption. First smoke rose from the volcanic cone, then came a great explosion whose detonation shook the earth. Cinders shot heavenward and tongues of flame surged about the crater's flanks. Then vast clouds of sulphurous smoke burst forth, the lava fields at the base of the crater belched flame, and fiery out-pourings shot into the air, while renewed subterranean explosions shook the countryside.

All that actually happened at Lava Butte. The phenomenon is beyond dispute, because it was witnessed by some one hundred of Portland's sanest business men. An actual fact, truly enough, but yet scarce scientifically established—rather, a triumph of nature faking! For the "eruption" was a hoax from start to finish, and has gone down in history as the biggest and the best practical joke ever perpetrated in the Pacific Northwest. The dupes—and they were marvelously well "taken in"—were members of the Portland Ad Club, in whose honor the affair was arranged by the hosts of Bend.

No more picturesque nor appropriate setting for such an undertaking could be imagined.

Lava Butte is an almost perfect cone, rising some four hundred feet from its surrounding fields of lava, close beside the road that connects Bend with California. The cone is of ash, and has a few trees on its slopes, while at the top is a crater perhaps two hundred feet in depth. The side which the Admen saw is of bare volcanic ash and lava rock, so far as appearances are concerned a creditable replica of Vesuvius' cone. In the foreground, from where the "audience" watched, the impassible field of lava—like a melting pot of grey molten metal suddenly petrified even while it was being tossed and sundered —furnished a remarkably effective "down stage" for the scene. The *modus operendi* included about a thousand pounds of dynamite and black powder, and enough in the way of smoke bombs and similar contrivances to stage a moving picture siege of Liege.

Lava Butte and its lava fields, and the other lava outpourings of Central Oregon, are objects of unique interest, even when no such stunts are enacted to scare the innocent bystander out of a year's growth. Together with them are many other freaks, such as caves of ice in the midst of hot and utter dryness, and rivers that spring into full being from absolute dust, not to mention a great play-land of surpassing scenic charm always worth visitation. Indeed, the Oregonian who forgets that more than half of his state lies on "the other side of the hill," as the Bend men express it, has still in store for him in his own state many a visual treat, without necessity for far journeyings.



No. 1—Eruption of Mount Lassen June 14, 1914, at 9:45 A. M.
No. 2—Eruption of Mount Lassen June 14, 1914, at 9:55 A. M.
No. 3—Eruption of Mount Lassen June 14, 1914, at 10:10 A. M.

Photos copyright, 1914, by P. J. Thompson, Susanville, Cal.

Upper—Mount Lassen at close range; view taken about 3 miles from the summit looking due north. The ridge at the extreme left is of easy ascent. The old and new craters are to the left of the highest point just beyond the snow covered crest.

Lower—Boiling Lake at base of Mount Lassen. This lake covers about 10 acres and during the summer is boiling hot. Note the wreaths of steam over surface of the water. This lake is properly called Lake Tartarus, so named and mapped by the Wheeler Survey.

Snow-bedecked Mount Shasta (14,380 feet), from town of Weed, Cal., objective of 1915 outing of Mazamas. In size Shasta is second only to Mount Rainier among the mountains of the United States.

Photos by W. E. Stone, Lafayette, Ind.

Mountains of Upper Yoho Valley, British Columbia, scene of 1914 outing of Alpine Club of Canada. 1—Mount Kerr. 2—Mount President, left; Vice-President, right. 3—Mount Habel and Habel Glacier. 4—Left to right, Mount President, Emerald Pass, Mount Marpole.

The A. C. C. in the Upper Yoho Valley

By W. E. Stone.*

The selection of the Upper Yoho Valley as the site for the ninth annual camp of the Alpine Club of Canada brought delight to its veteran members and introduced the novices to one of the most interesting regions of the Canadian Rockies. To quote from the announcement, "The Yoho Valleys present the climax of alpine scenery in the main range. Here within a small compass is found a magnificent assortment; open park-like forests, picture lakes, waterfalls dropping hundreds of feet, alpine meadows ablaze with vivid bloom, tumbling ice falls and wide stretches of ice fields bordered by rocks and snow clad giants."

The camp was nearly at the source of the south branch of the Yoho rim at 6,700 feet altitude, at the timber limit. On every hand were to be seen snow peaks and glaciers. At least fifteen first-class mountains were accessible from the camp and all of them were climbed. A half dozen waterfalls, an equal number of lakes, and a dozen glaciers added to the interest of the region and offered opportunities for excursions and climbs suited to all capacities.

Field station on the C. P. R. was the point of departure from whence two routes penetrated the valley to the north. The one up the floor of the valley was the longer and suitable for use by the pony outfit, but the mountaineers' route was over the 18-mile trail crossing Burgess pass, skirting the immense basin in which reposes Emerald Lake, across which the Presidential range lifted its imposing peaks, to Yoho Pass where on the shores of Summit lake a halt was usually made for rest and tea. From this point the trail skirted the Yoho Valley high on its western side, from which we looked across to the tremendous Takakkaw falls with a sheer drop of over 1000 feet, fed from the great Balfour and Daly ice fields. Gradually this trail rounded the shoulder of the Presidential range and bore away to the southward over green alpine meadows always high above the valley and affording to the northward a grand panoramic view of the Yoho and Habel ice fields and of Mts. Balfour, Gordon, Habel and other far away peaks. Going into camp over this route was a good day's work for the unseasoned ones but richly repaying the effort. To spend thus a whole day in these lofty wind-swept altitudes with a constantly changing view of superlative interest and grandeur was in itself a rare experience.

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The camp itself presented the usual well arranged features of the A. C. C., shelter for all as is necessary in this region of storms and cold; the cook tent presided over by Jim Pong, a Chinese expert, and his minions; an immense fly sheltering the eating tables; flag staffs bearing a complete collection of British and colonial ensigns and including the Stars and Stripes in deference to American members; a great camp fire every evening! quarters for the men on the far side of the stream and quarters for the women in the seclusion of a fine grove of spruce. With this completely equipped establishment as a base and an attendance of 125 members and upward, there were daily achievements of mountaineering, of explorations, and of good fellowship about the camp fire which maintained interest at a high pitch.

The official or graduating climb was Mt. President (10,287 feet) which, with its twin peak Vice President (10,049 feet) connected by a fine snow saddle, was easily reached from the camp over an interesting ice and rock climb in four to five hours. Mt. Kerr (9,384 feet) and Kiwetinok Peak (9,512 feet) at the head of the valley were easy climbs. On the former we found the record of Edward Whymper's ascent when he visited this region in 1901. Mt. Marpole (9,822 feet) separated from the President by Emerald Pass, a sheer rock peak, was the "sporting" climb of the region and was ascended several times under the leadership of the Swiss guides. Mt. Habel (10,361 feet) lying some distance north of Camp and reached over the great Habel glacier, was one of the most interesting climbs to be made in one day from the camp, affording a splendid view to the north and also of the Mt. Freshfield group to the northwest. Here also was found one of Whymper's records, and in descending a glissade was enjoyed, which was remarkable for its length and excitement. For two-day trips there were excursions to the Yoho Glacier, Twin Falls, Mt. Balfour, Bow Lake, Mt. Gordon, etc.

Four professional Swiss guides were in attendance, and in addition expert club members were in constant requisition to take charge of the numerous daily parties. It is a commendable rule of the A. C. C. to allow no one to undertake climbs or excursions without registration and assignment of competent leaders. This precaution is responsible for the immunity of the club from serious accidents. Indeed, the highly perfected organization of the club is noteworthy as regards transport, commissary, and mountaineering. Director A. O. Wheeler combines genius with experience in this work and is ably seconded by Secretary Mitchell, Dr. Bell and others. None of the ascents were very difficult from a mountaineering standpoint but, on the other hand, none were devoid of some elements of difficulty or danger. It was therefore an

ideal region for the practice of mountaineering, for gaining experience, and for the enjoyment of all that challenges the alpinist.

As the accredited representative of the Mazamas, the writer received every possible courtesy and assistance during the ten days of his sojourn in camp and is pleased to report a fraternal and cordial feeling on the part of this young and vigorous Alpine Club toward its older sister in the States.

"The joy of life in steepness overcome,
And victories of ascent, and looking down
On all that has looked down on us, and joy
In breathing nearing Heaven."

TENNYSON.

The Mountaineers in Glacier National Park.

By Edgar E. Coursen.

The Mountaineers' outing through Glacier National Park was very successful, and was participated in by about 100. Of this number 40 were from Seattle, the other 60 being from all parts of the country. Five Mazamas were along, and a number of Sierra Club members, Appalachians, etc. The regular tourist trails were made use of part of the time, but there were many days when the Mountaineer guides made their own trails. Side trips were made to the summits of Mt. Henry, 8875 feet; Mt. Siyeh, 10,004 feet, and Mt. Piegan, 9200 feet.

To the writer the most startling and beautiful scene of the whole trip was the view from the summit of Siyeh. Dozens of jagged peaks were in sight in all directions, while at our feet, as we looked down a perpendicular wall of 4200 feet, was Cracker Lake. Other wonderful sights were the views from Ahern Pass, Dawson Pass (crossed in a 50-mile gale) and Swift Current Pass. Over 200 miles were covered on the trip, which extended as far north as Lake Waterton, on the Canadian border. Space is lacking for a detailed account of the whole trip, but mention must be made of the big gale and snowstorm near Mt. Cleveland, which buried main camp in 18 inches of snow. For parties of from two to ten people, the ideal way to go through Glacier National Park is to walk through on the regular tourist trails, using the Great Northern Chalets and camps for lodging and meals. This can be done for $3 per day.

Camping places used by the Mountaineers were at Forty-Mile Creek, Two Medicine Lake, Nyack Lake, Red Eagle Glacier, Gunsight Chalet, Piegan Pines, Lake McDermott, Granite Park, Lame Duck, Mt. Cleveland, Lone Pine and Lake Macdonald.

"Life is too short to get everything. Choose you must, and as you choose, choose only the best—in friends, in books, in recreation, in everything."

General Armstrong.

GLACIER NATIONAL PARK.

top—Gunsight Camp and Gunsight Lake and trail over Gunsight Pass; above the Camp, Blackfeet Glacier
most-a-Dog Mountain.
bottom—Lake McDermott and Wilbur Mountain.

GLACIER NATIONAL PARK.

At top—Looking north from Swift Current Pass; Mount Cleveland in middle distance; Citadel Peaks just to left of Cleveland.

At bottom—Upper St. Mary Lake.

Photo by Kiser Photo Co., Portland.

Mount Jefferson looking due south from the rim of Hanging Valley Canyon Hanging Valley (Jefferson Park) in the center.

Scenes on climb of Mount Jefferson, 1907. 1—Mount Jefferson looking across Hanging Valley. 2— pinnacle at head of steep snow field. 3—Precipitous rock tower which must be circumvented before p reached. 4—Precarious climbing, showing knife-edge ridge leading to summit. 5—Stammers, Hicks an summit.

Mt. Jefferson Outing of 1907.

By John A. Lee.

One of the most noteworthy summer trips of the Mazamas, and one that has not heretofore been written up for any Mazama publication, is the Mt. Jefferson outing of 1907.

This expedition was unique in one respect, at least among the Club outings of recent years. There were only two ladies in the party. Others had planned to make the trip but were prevented for various reasons, so that when the party assembled at the Union Depot in Portland for the start, only two "nannies" appeared, much to the consternation of these two. They were "game," however, and refused to turn back, though some little persuasion was required to dispel the scruples aroused by the unexpected situation. Needless to say, they had no cause to regret their decision and will confess, I am sure, to having had an even better time than if their sex had been more numerously represented. It often happens that the degree of men's gallantry is in inverse ratio to the number present to invoke it, and so it proved in this case. At any rate, when boughs were to be cut for beds or other aid to be given, the rivalry was rather keen among the men as to who should look out for the fair ones.

The party was not a large one, not to exceed twenty-five in all, but what it lacked in numbers was made up in congeniality and mountain spirit, and a most successful outing was had. C. H. Sholes was president of the Club that year and E. P. Sheldon was chairman of the outing committee. F. H. Kiser, our official photographer, looked upon the scenic possibilities of the trip with sufficient favor as not only to come along himself but to bring an assistant in the person of E. A. Chindlund. M. W. Gorman, the botanist of the club, was of the party. S. S. Mohler, of Oregon City, who was thoroughly familiar with the region to be visited and had been twice to the summit of Mt. Jefferson, was procured as packer and a Mr. Sprague, as cook. Sprague was really the hero of the expedition. He tipped the scales at only a little less than three hundred pounds and was not accustomed to the long hikes and strenuous life which the character of the trip made necessary. Nevertheless he kept up with the procession on the march, performed in most acceptable manner his duties as cook, and did both without a murmur.

Mt. Jefferson is situate almost due south of Mt. Hood and almost due east of Albany. Like Mt. Hood it is in the main chain of the

Cascades, dividing the waters of the Deschutes from those of the Willamette. St. Helens, Rainier and Baker are unlike Adams, Hood and Jefferson in this respect, for the former are somewhat isolated peaks, lying west of the main chain and feeding streams that all flow to the westward.

Mt. Jefferson is the second highest mountain in the Oregon Cascades. Its altitude is officially given as 10,350 feet, being only 875 feet less than that of Hood. Only the extreme tip of the pinnacle is visible from Portland, and to see this the day must be clear and one must go up to Council Crest or one of the higher elevations about the city. Owing to the numerous intervening chains of foot hills, there are few points in the Willamette Valley that afford a good view of Jefferson, but from the east it stands out a magnificent spectacle.

The writer will never forget a view that he had of Jefferson some years ago from Six-shooter Mountain, a spur of the Blue Mountains, in Wheeler County. It was a bright day in April and the numerous peaks of the Oregon Cascades, and Mt. Adams as well, still clad from foot to crest in the hoary garb of winter, were visible in all their glory. It was a splendid panorama, and Mt. Jefferson did not suffer in comparison with her sister peaks. Indeed, from this view, Jefferson bears a striking resemblance to Hood and is not appreciably lower in elevation.

Our trip in 1907 was to the north side of Jefferson. The Mazamas had camped on the south side in 1900 but had succeeded in ascending only to the base of the pinnacle. This time we determined that we should not be balked and that some of the party, at least, should stand on the topmost summit of the mountain. L. J. Hicks, a member of the outing committee, was instrumental in having this route selected and never tired of expatiating upon the beauties of Hanging Valley, which was to be the site of our permanent camp. In company with Mr. Mohler he had made the ascent of the mountain the previous year by this route. This was Mohler's second ascent, he having made the climb alone in 1903 and planted a staff upon the summit. Mohler's ascent of 1903 was the first from the north to be chronicled.

Few beside Hicks and Mohler had visited the region that we were to explore, perhaps none other than hunters, sheep-herders and Indians, and it was with high expectations that we embarked upon a Southern Pacific train on an afternoon in the middle of July. The first night was spent in Albany. The next morning we boarded the Corvallis & Eastern train for Detroit, the eastern terminus of the road, on the north fork of the Santiam. Here we found our pack train awaiting us and after a hurried luncheon "hit the trail."

Our route now left the Santiam, which would have taken us to Pamelia Lake and the south side of the mountain, and lay along the Breitenbush, a beautiful limpid stream which puts into the Santiam a short distance below Detroit and flows through a magnificent forest of fir, hemlock and cedar. A delightful afternoon's walk, rendered the more interesting by Brother Gorman's characteristic comments upon the flora that grew along our path, brought us to Breitenbush Hot Springs. Here we spent the night, furnishing, in our mountain garb, objects of interest to the numerous city folk sojourning at the Springs. Fishing in the Breitenbush was tried but without much success.

Our next camp was to be at Horse Heaven, on the summit of the Cascades, and some five or six miles north of Jefferson. It was to be a long tramp, twenty-two miles or more in distance with a lot of elevation to be negotiated, so we were up and at it early. The trail, one used by the Indians in days gone by, continued along the Breitenbush for a distance, then swung up on the ridge to the north, continued easterly on the ridge until the summit of the Cascades was reached, then southerly along the summit to the selected camp at Horse Heaven. We all reached it by nightfall, but our sympathy went out to poor Sprague. Both his feet were blistered and the perspiration poured from his face in streams.

Horse Heaven camp was so named because of the excellent pasturage for horses that it affords, but the numerous ghost trees that, in the moonlight, stood out like so many spooks, and the myriads of mosquitoes that seemed bent upon reducing us to a spook-like tenuity caused us to feel, that first night in this camp, that the place was deserving of a far different name. With these impressions upon retiring (I use the term advisedly, for sleep was out of the question), you can imagine our feelings the next morning upon being informed that we must wait at this camp for several days, as there was too much snow ahead to permit of taking the horses through. Still we made the most of it, as true mountaineers always do, and spent the few days we were compelled to remain here in exploring the region roundabout. Olallie Butte and Lake were visited and a few of us dropped down some two thousand feet to the headwaters of the Breitenbush, where fair fishing was enjoyed. R. L. Glisan had brought along a portable canoe. This, as a master stroke in gallantry, he lugged over to Olallie Lake, being some miles distant, so as to afford the ladies a canoe ride on the lake. The Mt. Hood lily (*Lilium Washingtonianum*) grew in abundance a short distance from camp and deer were seen by several of the party.

It was finally decided that the horses could be gotten through and we continued on our way. Upon coming out upon the rim of Hanging Valley and looking down a thousand feet or more upon the floor of the valley, with its many lakelets and clumps of trees, with grass and heather and numerous varieties of wild flowers springing thickly in the places that were bare of snow, and with Jefferson itself rearing its crest majestically from the opposite marge of the valley, we could well imagine the feelings of the Israelites upon obtaining their first view of the Promised Land.

Descending into the valley, we soon had camp constructed in a heather-carpeted nook among the trees and the Mazamas were home again amid haunts such as they most enjoy.

Hanging Valley, now known as Jefferson Park, is indeed one of the beauty spots of the Cascades. Its floor is almost level and extends for more than a mile in an east and west direction and perhaps a half mile from north to south. It rests upon the very summit of the Cascades and has an elevation, I should judge, of at least five thousand feet. Its eastern waters, plunging over a precipice, find their way into the Metolius and then the Deschutes, and its western waters, after gathering to form a waterfall of equal beauty, help to swell the flood of the Santiam.

Of its flowers, the Indian Paint Brush (*Castilleja Oreopola*) was perhaps most in evidence, but almost every variety was to be seen that is found in the high Cascades. The Castilleja was present here in all the numerous colorings peculiar to this plant, white, cream, salmon, pink, scarlet, crimson and purple, though the lighter colors seemed to predominate. On Rainier and Baker and other of the Washington mountains this showy plant is seen more commonly in its darker hues.

The lakes were in such number, and beautiful little lakes they were too, that each member of the party might have been provided with his own private bath tub. They were not scorned either, though the snow bergs floating about in most of them encouraged a quick return to shore after a plunge into their depths.

But we did not spend much time taking account of our surroundings, attractive though they were, before the more serious purpose of the trip was considered, the ascent of the mountain; for the outing was to be one of only two weeks. Before attempting a recital of this feature of the trip, and it will have to be brief, it will be well to picture roughly the character of Jefferson's summit. It has no dome or summit such as has Adams, St. Helens, Rainier, Baker, Shasta, or even Glacier Peak or Hood. Its summit is a thin, semi-circular rim of an old crater, very thin in places, set at intervals with pinnacles, the

highest of which, rising some four hundred feet above the rim, is the pinnacle at the extreme south. The western and most of the southerly rim of this crater has been completely broken away, forming a cirque sloping steeply, and in many places abruptly, from the inner walls of the northern and eastern rims. The outer wall of the eastern rim is a sheer precipice, as is likewise that of the north rim in many places. Precipitous and unclimbable is also most of the circumference of the main or south pinnacle. Only from the north or northwest is the ascent of the pinnacle feasible, though the approach to its base may be made from several different directions.

The first of our number to brave the battlements of Jefferson were C. H. Sholes, R. L. Glisan, F. H. Kiser and E. A. Chindlund, four as sturdy climbers as the party afforded, or most any party for that matter, and the first three named veterans at the game. They made the onslaught directly from the north, right up from camp. After hours of battling with the loose and friable rock of the precipitous northern rim, they found themselves upon its crest, but it was then too late to essay the main or south pinnacle, which was a mile or more away. Depositing on the top of a small pinnacle the record box which they had carried with them, they reluctantly returned to camp. They failed not because of any lack of skill or effort but because they were unfortunate in the selection of a difficult route.

The next attempt was led by L. J. Hicks, and thanks to his knowledge of the mountain gained the year before, not to speak deprecatingly of his ability as a leader, this attempt succeeded. Seven started in the Hicks party, L. J. Hicks, Walter Vollmann, Rev. A. D. Urgner, Nelson Gammans, Samuel J. Stammers, H. G. Rice, and the writer. We were up by the break of day and traveled west until we neared the westerly end of Hanging Valley. We then ascended a long snow slope that brought us to the summit of the north rim, at a point well over toward its westerly extremity. Working easterly along the rim, by ten o'clock we reached the place where the Sholes party had left the box. Here Urgner, Rice and Gammans concluded that the landscape was sufficiently attractive as viewed from this point, and decided to turn back.

The remaining four roped themselves together here, Hicks, Vollmann, Stammers and the writer in the order named, and this order was maintained throughout the day. Taking up the box, tediously we continued along the rim, easterly then southerly, on its crest in places and at others, where pinnacles would be encountered that could not be surmounted, along the inner wall of the rim, until the base of the main pinnacle was reached. The rock improved in character as we proceeded, so as to afford a firmer footing, but where we had to skirt the

inner wall of the rim great festoons of icicles clung to the rocks, in which steps had to be cut, and the fear that the masses of ice above might decide to peal off and come tumbling down gave us some concern. In these places, Vollmann, who had done considerable climbing in the Alps and had imbibed deeply of Alpine traditions as to climbing methods, refused to budge until the rope ahead of him was firmly anchored. Stammers had never before been on a snow mountain and he accepted the difficulties that were presented as though quite a matter of course.

We found the main pinnacle covered with snow and ice except upon its topmost point. Its ascent, though steep, was not especially difficult. There is a shoulder on its westerly side that leads right up to the summit. The first few feet required some boosting and pulling, but overhanging ice, which we were obliged to pass under, formed the chief element of risk.

We reached the summit, as nearly as I can now recall, at about two P.M. and found the staff still there that Mohler had planted, though much bent by the snow and storms. We anchored the Mazama box securely in a cleft of the rocks at the base of the staff, left our record in it, and then took pictures of ourselves, one of which, snapped by Vollmann, is shown in the group of views illustrating this article. The whole area of the summit will not exceed that of a fair sized room. The sky was unclouded and the atmosphere exceptionally free from haze, so that we had a magnificent view, the most distant and in some respects the finest that the writer has ever obtained in his mountain experience. The elongated dome of Shasta stood out prominently to the south, with all the intervening peaks, the Three Sisters, Thielsen, Pitt and the rest, and to the north there loomed the great group of snowy monarchs, Hood, Adams, St. Helens, Rainier, the Olympics and, doubt it if you will, Baker as well. The Blue Mountains to the east appeared not far distant and it seemed as though we might count all the wheat fields of Eastern Oregon.

In descending we modified our route and by so doing saved, I am sure, considerable time and effort. We worked off the pinnacle a little to the west of the point where the pinnacle rises from the rim (the rim has almost a knife edge here and we didn't relish the chance of a drop down into Eastern Oregon), then descended diagonally down and across the cirque. Climbing on a snow slope the south wall of the northern rim, we glissaded into camp, arriving there just as the shades of night were falling.

No mishap marred the success of the day, though Stammers had one thrill. As he was descending the last ledge of the pinnacle, which

is quite abrupt and leads onto a slope only a little less steep, he lost his footing. The rope was well anchored, however, and for the instant he found himself dangling in mid-air. With the start he had gotten and but for the rope he might have taken a nasty slide.

A third attack of the summit was made a day or two later by L. E. Anderson and Francis Benefiel. They reached a point on the rim well over toward the base of the pinnacle, but were turned back by threatening weather. Nearly all of the party, as I now recall, succeeded during the course of the outing in reaching the crest of the north rim, but no other attempts were made to gain the summit.

Mt. Jefferson is indeed one of our most difficult mountains. I am inclined to think, however, that most of the attempts to climb it which have failed, and they have been quite numerous, have been due either to a lack of information as to the proper route or to unfavorable weather. We would have found the conditions for the ascent more favorable, I am sure, later in the season, when the rock ledges would have been free of ice.

Most of our party arrived back in Portland on the evening of July 29, returning by the same route that had been followed on the journey to the mountain. Hicks, Kerr and Benefiel returned by way of the Clackamas River, hunting and fishing along the way.

The following is a list of those who participated in the outing, though the writer will not vouch for its completeness:

Anderson, L. E., Portland, Oregon.
Benefiel, Francis, Portland, Oregon.
Bernstein, R. A., Los Angeles, Cal.
Chindlund, E. A., Portland, Oregon.
Gammans, Nelson, Portland, Oregon.
Glisan, R. L., Portland, Oregon.
Gorman, M. W., Portland, Oregon.
Hicks, L. J., Portland, Oregon.
Henneman, H. R., Portland, Oregon.
Kerr, Dr. D. T., Portland, Oregon.
Kiser, F. H., Portland, Oregon.
Lee, John A., Portland, Oregon.
Mohler, S. S., Oregon City, Oregon.
Plummer, Agnes, Portland, Oregon.
Rankin, Anna L., Portland, Oregon.
Rice, H. G., Portland, Oregon.
Sheldon, E. P., Portland, Oregon.
Sholes, C. H., Portland, Oregon.
Sprague, Mr., Portland, Oregon.
Stammers, S. J., New York City.
Urgner, Rev. A. D., Portland, Oregon.
Vollmann, Walter, Portland, Oregon.
Willis, Eugene, Portland, Oregon.

Successful Climbers of Mt. Jefferson.

By ANDREW J. MONTGOMERY.

In our ascent of Mt. Jefferson last summer we found two boxes cached among the rocks at the rugged top of the main pinnacle. One of these is of copper, at that time in good condition, containing a small note book in which registration had been made. This is evidently the box that was placed on the summit by the first of the Mazama expeditions, or does it date back to the days of the old Oregon Alpine Club? The second box is of iron and has been punctured in three or four places by the frequent lightnings. This box was taken up by the second Mazama expedition. The chain by which it was fastened to the rock has been burnt here and there until it is in small pieces not a foot in length. The complete list taken from both boxes follows:

July 13, 1895—Jennie Cooper, Independence; Ella Wasson, Monmouth; D. A. Hoag, Suver; Ella V. Fisher, Monmouth; W. H. Hawley, Independence; S. R. Burford, Jr., Salem; Essie G. Robertson, Independence; E. G. Kirby, Salem; Maud Cooper, Independence; Clinton Teal, Independence; F. O. Hutchinson, Dallas; Don Lewis (age 13), Monmouth; C. C. Lewis, Monmouth.

July 23, 1895—Miss Dora Benson, Sublimity; Mr. and Mrs. H. D. Trover; Mr. and Mrs. Eugene Willis; Capt. Nat Bowman, guide.

August 2, 1895—Miss Ida Butterworth, Wilmington, Ohio; Clara E. Perkett, Cadillac, Mich.; Capt. Nat. Bowman, guide.

August 14, 1895—F. I. Bevier, Gates; A. Brady, Minto; W. T. Foster, Gates; Zella Cox, Sheridan; Ollie Cox, Sheridan; Newton Lewis, Gates; Henry Lewis, Gates.

July 14, 1897—Geo. L. Gates, Sisters; Miss Musa Geer, Salem; Miss Helen Hibbard, Salem; Pearl L. Blackerby, Silverton; Mr. and Mrs. E. T. Moores, Silverton; Charles E. Robbin, Salem; Newt. Lewis, Gates.

August 5, 1897—Geo. L. Gates, Sisters; E. C. Neal, Gates; J. H. Collins, Gates; Charles E. Robbin, Salem; Geo. H. Burnett, Salem.

August 23, 1904—David B. Smith, Salem.

*July 23, 1907—Pres. C. H. Sholes, E. A. Chindlund, F. H. Kiser, F. W. Vollmann, R. L. Glisan.

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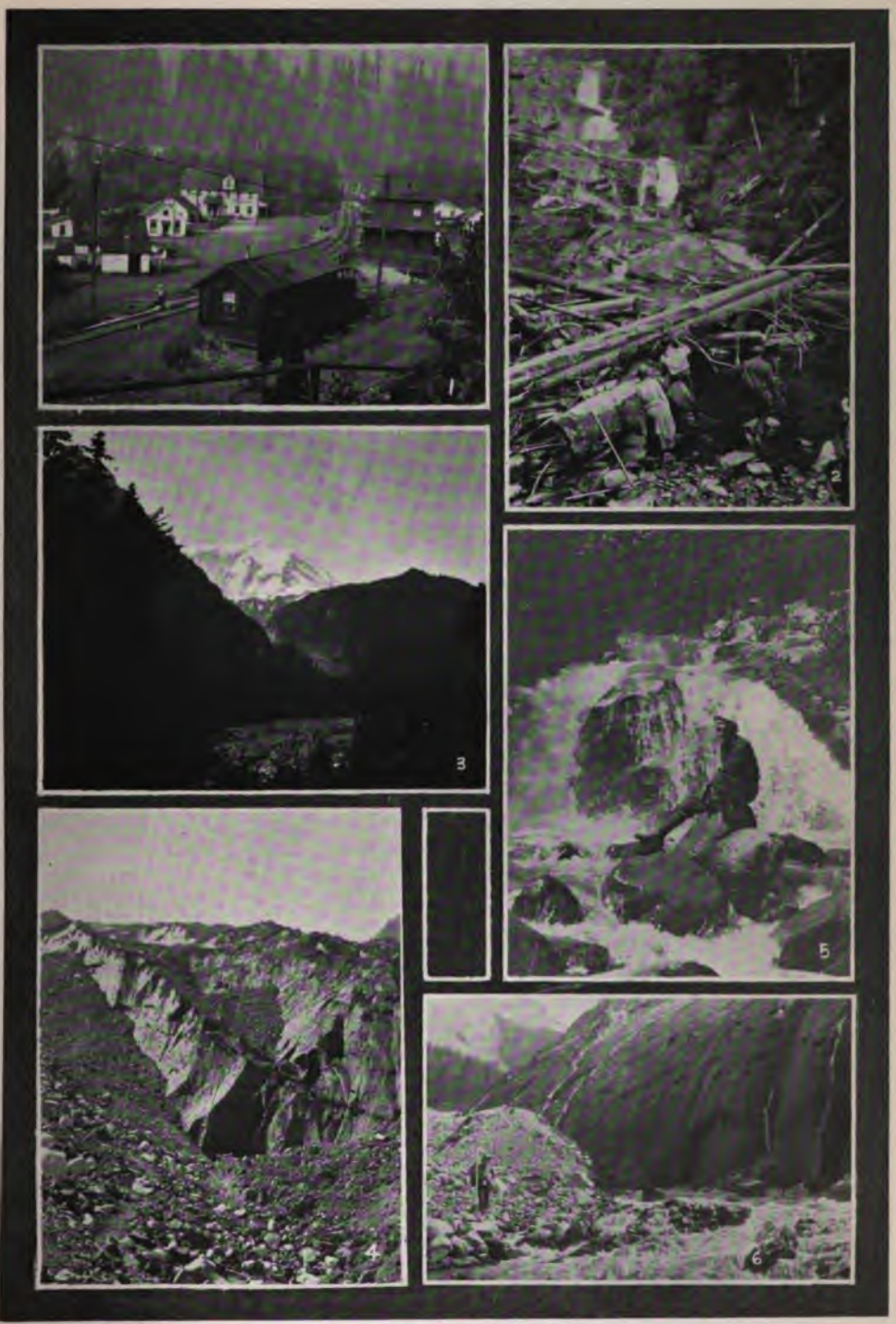
*I should like to explain the appearance of the names of the Mazama party of July 23, 1907, in the record book. Mr. Sholes and party attempted the climb on that date, carrying a new record box with them. They did not reach the summit, so signed their names in the book and left it, intending to take it to the summit later. However, the next day another Mazama party made a successful climb and took the record box to the summit. There was not sufficient time left for Mr. Sholes and party to make another attempt.—Francis W. Benefiel.



On the way to Camp Prouty. 1—Fairfax, terminus of railroad where 23-mile hike began. 2—Chenuis Creek Falls, nearly half way. 3—Silhouette of Carbon River Cliffs with the lordly monarch in the background; view taken at Spokewush Creek Camp. 4—Snout of Carbon Glacier. 5—Unnamed falls near Camp Prouty. 6—Snout of Winthrop Glacier. Views 1 to 5 by E. F. Peterson, of Portland; No. 6, by W. E. Stone, of Lafayette, Ind.

Photo copyright by Kiser Photo Co., Portland.

Mystic Lake with Winthrop Glacier and Steamboat Prow in the distance.

July 24, 1907—Lucius J. Hicks, Portland; S. J. Stammers, New York; F. W. Vollmann, Portland; John A. Lee, Portland.

August 18, 1907—Arthur C. Bancroft, Portland; Henry M. Esterly, Portland.

September 1, 1910—Henry Seasia (St. Johns, Ore. ?)

August 17, 1911—R. T. McConnell, 104 Monroe St., Portland; Carl E. Collins, 617 Kearney St., Portland.

August 6, 1914—B. Olsen, 1281 E. 9th N., Portland; J. A. Rooney, 188 14th Street, Portland.

August 24, 1914—Andrew J. Montgomery, Portland; William J. Montgomery, Portland.

Year not given—S. S. Mohler, Oregon City.

This accounts for sixty-two ascents of this difficult peak by various persons, some of whom, as the above list will show, made more than one successful trip. The party of eight that made the ascent on July 14, 1897, makes the rather broad charge that no women had actually made the ascent prior to that time, but that they reached the base of the main pinnacle and the men of the parties gallantly carried their names up to the box. However, this is a matter to be settled only by those who are interested. It would also seem from the record that the party of July 23, 1907, did not reach the summit. The next day the successful party carried their names to the box. If that be true, it is doubtful whether their names should be allowed to stand in such a list as this. After making these deductions, if they should be made, and eliminating those who made the trip more than once, it would seem that in the last nineteen years only about fifty persons have stood on top of Oregon's Matterhorn, and that as many as seven summers passed between ascents.

A Trip to the Silver Star Mountain.

By Alfred F. Parker.

One who has lived in Portland for any length of time has undoubtedly noticed a group of mountains about twenty-five miles from the city in a direct line to the northeast. The nearest rises gradually and is thickly wooded, but behind this is a high peak with a rough, broken summit which is covered with snow about eight months of the year. They are the nearest mountains of any size in that direction, and stand out boldly against the sky-line from any viewpoint in the vicinity of Portland.

A long time ago I had been told that the highest of these was called Silver Star Mountain, but I had never heard the name confirmed, had never seen a map showing the mountain; and, furthermore, had never even succeeded in finding anyone who could give me any information about it, or who had ever been in that immediate vicinity.

My curiosity was gradually aroused and finally my brother and I determined to take a trip in that direction and try to climb the mountain, or, at least, to try to learn something about the country. After a diligent search, I found a rather crude map of Skamania County showing the mountain by name, and also a map of the Columbia National Forest showing Silver Star and the adjacent mountains and a rangers' trail leading in from the northwest and out toward the southwest. We decided to go in from the northwest by way of Moulton, Washington, the nearest point on the Yacolt branch of the Northern Pacific, and, if possible, to follow the trail out the other way to Prindle or some other nearby station on the S. P. & S.

Taking our sleeping bags and food for three days, we accordingly left Vancouver, Wash., on July 3d, 1914, at five P. M. and arrived at Moulton at 6:30 o'clock. As we did not know how much walking we should have to do, we secured a meal before leaving Vancouver, so that we might proceed as far as possible that night without stopping to eat. On arriving at Moulton we learned that we could cut off considerable distance and save much climbing by following the logging flume leading down from a mill situated about three miles to the southeast. We chose this route and although it was rather precarious—being in some places sixty feet from the ground and the planking on the side which served as a walk being none too strong—we reached the mill without difficulty.

Up to this time we had had no view of the mountains, but as we came to the top of a hill just after leaving the mill, a magnificent view burst suddenly upon us. The mountain which we had hoped to climb lay directly before us with the long extent of its jagged summit rising high against the sky, and the dead timber on its rocky face shining white as snow in the last rays of the setting sun. This sight made us more anxious than ever to get there and we pushed on with renewed vigor. A short distance farther on we stopped at a farmhouse and learned that the mountain ahead was really Silver Star, and that a good trail led to its summit. This information encouraged us greatly. By this time it was dusk, but soon the moon came out and we kept on along a rough road without stopping until 9:30 o'clock when we camped for the night at a beautiful spot on the bank of Grouse Creek very near to the base of the mountain.

A farmer who lives in that vicinity makes a practice of going part way up the mountain every day for the purpose of gathering cascara bark. He very kindly directed us to a private trail of his own leading up to the main trail and cutting off a considerable distance and we were soon on our way up. The ascent was gradual and through thick underbrush, but at about ten o'clock we came out on a shoulder of the mountain where our view was unobstructed. To the west, the fertile fields of Clarke County lay out like a map at our feet, while to the north and east was a great rolling sea of green forest with an occasional burn—the scar of an old forest fire. To the north an occasional patch of cultivated ground and a few columns of rising smoke showed that even this apparent wilderness was not entirely outside the domain of man; but to the east the forest extended unbroken as far as the eye could reach. Clouds were obscuring the snow peaks, but occasionally St. Helens or Adams would show itself for a few minutes as if to let us know that it did not wish to be forgotten.

From this point nearly to the summit the trail traversed was covered with thick grass and rocks, but no brush, and the most lovely mountain flowers of every description were growing in wild profusion: Dog-tooth violets were especially abundant, but dozens of other kinds were prominent. In one large patch it happened that there were just three colors—bright red, white and blue—which, inasmuch as the date was July 4th, we considered quite appropriate.

We kept on and a little before noon we were perched on the rocks on the topmost summit of the mountain and the view to the south opened up. Immediately below, to the southeast and the southwest, we could look down several thousand feet into deep, narrow valleys with small streams at the bottom. Directly south, many of the familiar

landmarks on the Oregon side of the Columbia River were distinctly visible, the great rolling bulk of Larch Mountain being particularly prominent. The sky at this time was very cloudy and we would now and then be enveloped in a heavy fog for a few minutes. The air was chilly and as there was no deciduous vegetation in sight, the gray rock and dead timber and occasional patches of snow gave a most bleak appearance to the landscape—in fact, we could hardly realize that it was not winter.

Having had lunch and a short rest, we followed further the trail on which we had ascended, continuing along the ridge of the mountain. After a short time we came upon the remains of a camp in a sheltered spot among some trees. Some distance farther on the trail became completely obliterated and then our troubles began. We had noticed a trail leading across the rock face of Baldy, the next mountain to the east of Silver Star, and connected to it by a long ridge; and after holding a council of war, we decided to go over to Baldy and try this route out. We had a hard scramble over rough rock and dead trees, but at last we reached the trail. Here we thought our difficulties over, but it was not destined to be so, for as soon as the trail left the rock and headed down a long, wooded ridge to the south, it also became lost completely. We then decided to follow the ridge, trail or no trail. We proceeded on our way although the underbrush grew thicker and thicker. The footing was bad and our progress necessarily slow. We often came across prospect holes and we assumed that the old trail had probably been made by prospectors years ago, and this we later found to be the case. Crashing through brush after two or three hours became monotonous, so we decided to go down to a stream which could be heard in the canyon below and follow it down if possible. A wild scramble down the steep side of the canyon brought us at six o'clock P. M. to the side of a little mountain brook, and after quenching our thirst we started on. We succeeded in negotiating four or five miles before darkness overtook us, when we had our evening meal and camped for the night.

The next morning we were up at dawn and secured an early start. Mile after mile we waded the stream, crossing back and forth and jumping from rock to rock as necessity required. The number of turns seemed endless, but as we knew that our course was in the right direction, we kept on, stopping occasionally to eat blackberries and huckleberries, which were very abundant and of fine quality. Finally at 9:30 A. M. an old dam was reached which enabled us to locate ourselves very quickly with the aid of a U. S. Geological Survey map, and from there on the progress was easy. At 10:30 we met some people,

the first we had seen for over twenty-four hours, and a leisurely walk across the Washougal Valley brought us to Mt. Pleasant in time to catch the evening train for Portland.

I shall always remember this trip as one of the most delightful little week-end outings that I have ever had. When one stops to consider that probably at no time were we outside of a radius of thirty miles from Portland, he realizes what a great wealth of really wild country lies at the very door of our thriving metropolis, and how little time and money are required for its enjoyment.

The Columbia River Highway

By H. H. Riddell.

Long years ago, when, in the adventurous Forties of the last century, our pioneer ancestors came creeping across the continent with their slow-moving ox teams, halted by the precipitous walls of the Columbia Gorge, they entertained thoughts of a highway down the river's bank. Rafts, barges, and batteaux were the only practicable means of passing the range. Hardships, of which we scarce conceive, were endured between The Dalles and Portland, on the last formidable stretch of the great journey. The frowning ramparts of the canyon wall effectively defied the puny attempts made from time to time, during the pioneer era, to effect a passage for a wagon road along the river.

Afterward the young state undertook to construct a road, and made an appropriation for The Dalles and Sandy Road, as it was then called. It was never completed. The cost was too great; the difficulties too stupendous. Steamboat, and after 1882, railroad, transportation alone served.

A few years ago an attempt was actually made toward opening a road into the Columbia wonderland. At the instigation of some of the leading business men of Portland, the County Court of Multnomah County directed a survey from Bridal Veil to the County line, just east of Eagle Creek. The project slumbered, however, until 1913, when a dash of energy inspired by A. S. Benson and other heavy taxpayers led to a tax levy sufficient to construct the highway. Mr. J. B. Yeon donated his services to the county as roadmaster and was appointed to take charge of the construction. Major Lancaster already had his transit men in the field, locating a feasible route around Thor's Point and down the hill to Latourelle. With Mr. Yeon on the job, active construction commenced. Camps at Multnomah Falls, Oneonta Gorge and Latourelle housed busy throngs of men, who, day by day, dug, blasted and built their way through banks and bluffs of earth and rock, while the roadway grew like a thin line from the canyon rim at Chanticleer to the gloomy depths of Oneonta Gorge. Always five per cent as a maximum grade was the slogan of the roadbuilders as they drove their way through rocks and over gorge and chasm. Nothing but the best in material and workmanship was the standard set up. "No soft jobs or political snaps," "Only workers need apply," were some of the epigramatic maxims of the roadmaster. During Winter,

feet or more in one sheer leap, dashing in spray on the rocks at the bottom. Here one may find such food and shelter as he perhaps has dreamed of but has seldom experienced. It is but a short distance on to Shephards Dell, a rock girt chasm down which dashes a stream. Here a concrete arch one hundred feet long spans the dell, one hundred and twenty feet from its bottom. Then the roadway skirts the base of some cliffs of columnar basalt that have been arcaded so that the overhang of the cliffs is over the center of the road. A little further, and Bridal Veil with its falls, flumes and mill, lies under the road. Then a short stretch and we pass the point where Lieutenant Broughton, in October, 1792, made his highest point on the first exploration of the river and turned back to Vancouver, waiting in Bakers Bay. Then Mist Falls with its thousand-foot leap appears; while across the river to the north Cape Horn lifts its massive battlements. Another turn and the beauties of Gordon Falls are bared. To many, this is the most beautiful of all the many falls and cascades along the highway. Another quarter of a mile, and Multnomah pours its flood down its hundreds of feet of perpendicular drop. This is the greatest water fall along the highway and is mystically beautiful; always the same, but ever changing. A mile along concrete viaduct, and well placed, carefully designed grade, and Oneonta opens the dim recesses of its cavernous gorge to the fleeting view; while back in its shadows a fall drops many feet; then the tunnel through the bluffs and the spray of Horse Tail Falls dashes quite out to the highway, so close is the bridge placed to the basin into which the waterfall tumbles.

Cliffs, bluffs, spires and domes, rising height upon height, fill the view, until St. Peters, with its unscaled peak, overhangs the way. To the east and south, a mass of mountains, piled one on another, reach the nearby horizon, until the eye wearies with the detail, but is always entranced with the grandeur of it all.

From Dodson's and Warrendale, with Castle Rock lifting its massive crags of andesite across the Columbia, the faint white line of the Duncan Creek falls, far up the side of Archer Mountain, in Washington is visible. Then the road pursues its way over Pierce, or Kelly Creek, with its beautiful waterfall pouring down the cliff, and through a forest of ancient fir trees, that clothe the talus slopes to the deep ravine of Moffett Creek, which the road crosses some seventy feet above the rushing stream. A half mile back from the road, this pretty stream flows through a natural tunnel just after it falls for an hundred feet of an overleap into the gorge.

On the Washington side of the river the immense ramparts of Hamilton Mountain, and the huge uplift of Table Mountain, lift them-

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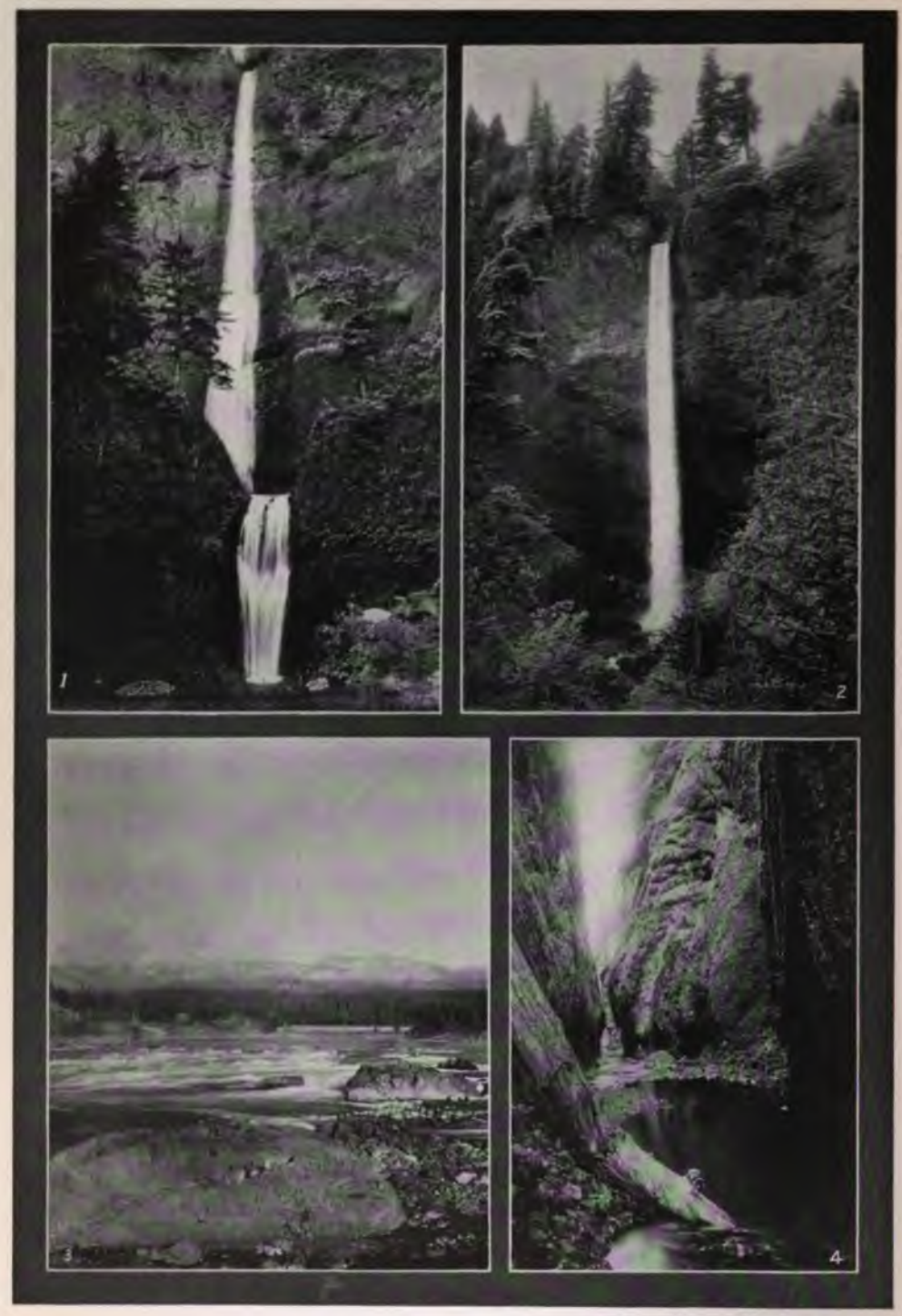
Columbia Highway Scenes. Left to right: Horsetail Falls, which plunges into its basin 30 feet from the roadway; St. Peter's Dome, an unclimbed crag of 800 feet; Gordon Falls, probably the most beautiful falls in Columbia River Gorge.



Photos copyright by Benj. A. Gifford, Portland.

Columbia Highway Scenes. 1—Beautiful Multnomah Falls. 2—Latourelle Falls. 3—Cascades of the Columbia; here the great river drops 37 feet in four miles. 4—Oneonta Gorge looking out.

selves to an altitude of nearly four thousand feet, the greatest cliffs along the river. In the notch of the basin, between Table Mountain and Mount Wauna, Greenleaf Falls can be faintly discerned, making its drop of over a thousand feet to the river level. At the back of the road, Mt. Munrae shows a lofty expanse of perpendicular cliff, and tree-mantled slope; while in the foreground on Hamilton Island is the river beach on which General Phil. Sheridan received his baptism of fire in the Cascade massacre of March, 1856.

Passing Munrae's cliffs, and along a forest-covered slope, the road dips downward, crossing Tanner Creek above the State Salmon and Trout Hatchery, perhaps a half mile from the river. It pursues a winding course but approaches the river again above the basaltic bluffs west of Eagle Creek, from which a splendid view opens to the Cascades above, and the canyon of the Eagle. To the north is Bradford's Island where the Yakima Indians held Sheridan's command until he was relieved by Colonel Steptoe, who, hastening from The Dalles, defeated the savages, who were besieging the upper block house, in a spirited fight, and then relieved the troops on the island.

The road crosses Eagle, as it does Tanner Creek, some distance back from the river; but turns about and returns to the river bank near Deadman's Creek. The pretty falls of this creek are but a short distance back from the road. Past the sliding mountain, to Cascade Locks and the Cascades of the Columbia is a beautiful stretch of inimitable scenery. Here the road is passing through the heart of the Cascade Range, and the foaming, boiling surge of the river is hurtling by with almost the speed of a railroad train, after pouring down the Cascades. These were caused, as the legend goes, by the destruction and fall of the mythical bridge of the Wauna, the red and broken abutments of which are plainly visible in the north.

From Cascade Locks, the road leads through a gentler land, until after passing Wyeth the cliffs and rock talus slopes of Shell Mountain bar the way. After these come the falls of Lindsey Creek, Starvation Falls, and several other pretty cascades, that are in sight of the highway before Viento is reached.

Across the river from Shell Mountain, Wind Mountain offers a rare bit of mountain scenery; while just above, the buildings of Collins Springs are visible. From Viento to Hood River, the road is constantly passing sharp bluffs, and sheltered coves, planted with orchards, and by one or two lumber yards, with their flumes leading back to the mills on the mountain.

The highway properly terminates at Hood River; but the existing wagon roads open to The Dalles and Eastern Oregon, as well as to the road system of the Hood River valley; one branch leading to Cloud Cap Inn at the snow line on Mt. Hood, and another to the Lodge of Homer Rogers, a mountain resort without its peer for comfort and quiet elegance.

A road is planned, extending up the east fork of Hood River, through a low gap to White River, a few miles below the snout of the White River glacier; and then up Barlow Creek, to the Barlow (or Wemme) road just east of the summit of the range. This road, when built, will complete a belt line road from Portland around Mt. Hood, and return down Hood River Valley and the Columbia.

The Columbia River, and its adjacent mountains, may aptly be called the playground of the Mazamas. It is in this region that the most interesting of the local outings are planned. Larch Mountain, with its superb views of Mt. Hood, and the Bull Run watershed, Table Mountain, The Eagle Creek gorge, Oneonta, Multnomah, and Gordon Falls, and countless other points of equal interest, hold out invitations to climbers and all who love the outdoors. The construction of the Columbia Highway will bring these places more conveniently within the reach of the public. Heretofore, train and steamboat to the infrequent stations and landings have been the only means of transportation; but now, the convenient and always ready motor car will make it practicable to come and go at will, independent of time cards and railroad stations; and will give the added pleasure of making it possible to see and enjoy the varied panorama as one comes and goes. The road passes nearly thirty superb waterfalls in its course from Portland to Hood River. No other road has so great a number. Nowhere else can so rich a contrast of scenery be observed. Mountain, river, forest and waterfall all blend in one harmonious whole.

The Outing Committee.

By Francis W. Benefiel.*

The annual outing of the Mazamas, which includes the climbing of one of our lofty snow peaks, is not, to those in charge of the trip, what it may seem to the casual observer.

To him it is a swift trip by railroad and auto to the edge of civilization, a walk of a day or two up some scenic trail, which approaches the glacier-hung peak. The tramp ends at a perfectly located camp, where a corps of chefs strive to outdo themselves.

The exploration of streams and crags, the climbs over the crevassed glacier fill the allotted time. Finally the main climb; where one follows seasoned guides up and up, among the rocks and crevasses until all stand upon the crest. The never to be forgotten slides, the evenings at the camp-fires, the merry-making which lasts to the very end, when the members of the party seek their different ways, are always recalled with pleasant memories.

To those in charge of such an expedition and upon whom the responsibility rests, the chain of events has a very different aspect. It is the culmination of many plans and the result of much labor extending over the greater part of a year.

In the fall months of the year, when the objective point of the outing has been determined, it becomes necessary to obtain all available information regarding the region to be visited.

As the Mazamas usually visit places of which little is known and have their own methods of travel, it requires endless correspondence and suffering many delays to get necessary data.

As soon as sufficient information is at hand, estimates of the cost of the trip must be made and a price fixed which will not seem excessive and which will take care of the many expensive details.

A preliminary announcement, which will give an outline of the trip must then be published.

Then follows a publicity campaign, which should be continued until the end of the outing. This may take form of personal letters and answers to inquiries or items and illustrated articles in newspapers and magazines throughout the country. This probably is the most important department, as the success of the outing depends upon

*Mr. Benefiel has been chairman of the Mazama Outing Committee for the past three years, successful outings being held during his regime at Mount Hood, in 1912; Mount Adams, in 1913; and Mount Rainier, in 1914.—[Editor's Note.]

the personnel of the party. Unsuccessful trips usually fail through lack of publicity.

In June, at the latest, the final prospectus should be distributed. This should be gotten up in an attractive manner and contain definite information regarding every phase of the expedition. Rates and agreements with railroads must be attended to.

Someone should go over the ground to verify reports and choose camp sites.

The committee must, about a month before the outing, open headquarters, where persons interested in the trip may obtain desired information or advice. The headquarters should have a central location. Someone should be put in charge to give their entire attention to the work. They should be qualified to give information and advice concerning the outing and to keep an accurate account of all business transactions.

Contracts for packing must be closed with the best available packer. Packing is one of the vital parts of the outing. Mistakes or miscalculations with the packing, will, and has resulted in the loss of beds and provisions for a night or so.

The problem of commissary and equipments now faces the committee. How many are to be cared for and how much can be spent on this department? The greatest trouble to the committee has been that the size of the party is not definitely known at the time the provisions have to be shipped. We are making some progress along this line by making an additional charge to those who register during the last ten days previous to the outing, but as the provisions have to be shipped and the equipment perfected at least two weeks in advance, it is only fair to the committee that the time of the advanced price of registration should ante-date the time when the provisions must be shipped.

When the committee has learned how many to prepare for, the equipment must be gone over and put in repair and new purchases made. It is not advisable to take anything which may be rendered useless in transportation on pack horses.

The commissary must be complete with provisions for emergencies. Calculations may be based on some former trip or some recognized authority. These are matters more of knowing how than of actual labor.

In the selection of chef and helpers no risk should be taken. It is therefore important to secure those persons who have demonstrated their efficiency on former trips. On account of the large expense of

carrying assistants on such a trip, it is advisable to take as few and as skillful men as possible.

All this must be done while little or no money has been taken in. It often becomes a problem to finance where the outings are figured at the bare cost.

When the registration has reached estimated number the rest is clear sailing for the committee.

At the appointed time the party leaves for the mountain. By securing special railway cars the party is kept together. Beyond the railroad a temporary camp is usually made, to which the baggage has arrived in advance. Such camp sites should be carefully chosen. Food for temporary camps should be such as will be easily prepared and very nourishing, for if the tired hiker's stomach is upset at the first meal, it often spoils several days of the trip.

The site of the main camp should be carefully chosen for comfort and convenience as well as proximity to the mountain. The commissary must be maintained at high efficiency. In camp where much canned food is used and where persons are prone to overload their stomachs, great care must be taken to guard against ptomaine poisoning and other disorders. The absence of this in our camps for the last few years is due to the care taken by chef "Doc Weston" in these matters.

Other matters to be considered are guides and entertainment. The club has many experienced mountaineers, who, glad to be of service to the club, volunteer as guides. The camp-fire entertainment, the unity, the good-feeling toward guests of the club in such an encampment are accomplished more by the diplomacy and courtesy of the officers and members of the club than by any labor of the committee. The matter of discipline is very important where needed and very obnoxious where not needed; suffice it to say that whenever it is deemed necessary every Mazama waits at attention.

When the encampment breaks up, the equipment and baggage must be brought back safely; each piece of baggage delivered to its owner and the equipment put in shape for storing. The bills must be settled and a complete report made of the entire business of the outing. This takes up the spare time of the committee for the balance of the summer.

The matter of handling an outing and bringing it to a successful close is no small task. Naturally, the responsibility and the greater portion of the work devolves upon the chairman. Success is brought by the person who knows how. It should be gone about thoroughly and systematically. A trip which is not properly managed may hurt

the attendance at several succeeding trips. Handling the outing takes more time and energy than most of us can take from our regular occupation for more than a year or two. If there is some member of the club who can handle the outing successfully and is in a position to give considerable time to the work, especially during the summer months, he should be retained as chairman of the outing committee, and he paid a commensurate sum if the outing ends successfully. The loss to the club in money is far greater by breaking in a new man every year or two, than would equal a commensurate compensation of a tried and successful director of the outing. The club would have efficiency in the management of the expedition guaranteed and have better trips at less cost. From the nature of the work of the chairman of the outing, it is evident that a person should be selected to fill this office because of fitness rather than as a matter of conferred honor. His success should be judged by the success of the trip and not by personality.

Climb of Castle Rock.

By C. W. HOWARD.

Castle Rock presents one of the best rock climbs near Portland. It may well be called one of the "Guardians of the Columbia," as it is an isolated tower of columnar basalt, 1146 feet high, and stands on the north shore of the Columbia River, on the line of the "North Bank" Railroad, about 40 miles east of Portland. The base of the rock covers somewhere near 30 acres, and the sides of the rock are almost perpendicular to the very top. There is some vegetation on the rock but it is to be found only on the narrow ledges, which have been able to collect enough soil to support its growth and consists mainly of a few stunted firs and small shrubs, the lower portion of the rock being rather thickly covered with poison oak.

Until recently the ascent of Castle Rock had always been considered impossible. For several years there was a standing offer of $1000 to anyone who succeeded in placing the American flag on the summit. In the early days there was keen rivalry between two steamboat lines whose boats plied the Columbia River, and Frank Smith, of the "Regulator Line," with George Purcer and Charles Church, by means of ropes, iron pins and an unlimited amount of nerve, scaled the rock for the first time during the summer of 1901 and unfurled the Stars and Stripes, and "Regulator" banner, to the breeze. These were the first flags to wave from the summit of Castle Rock, as never before, as far as they could ascertain, had human foot trod there.

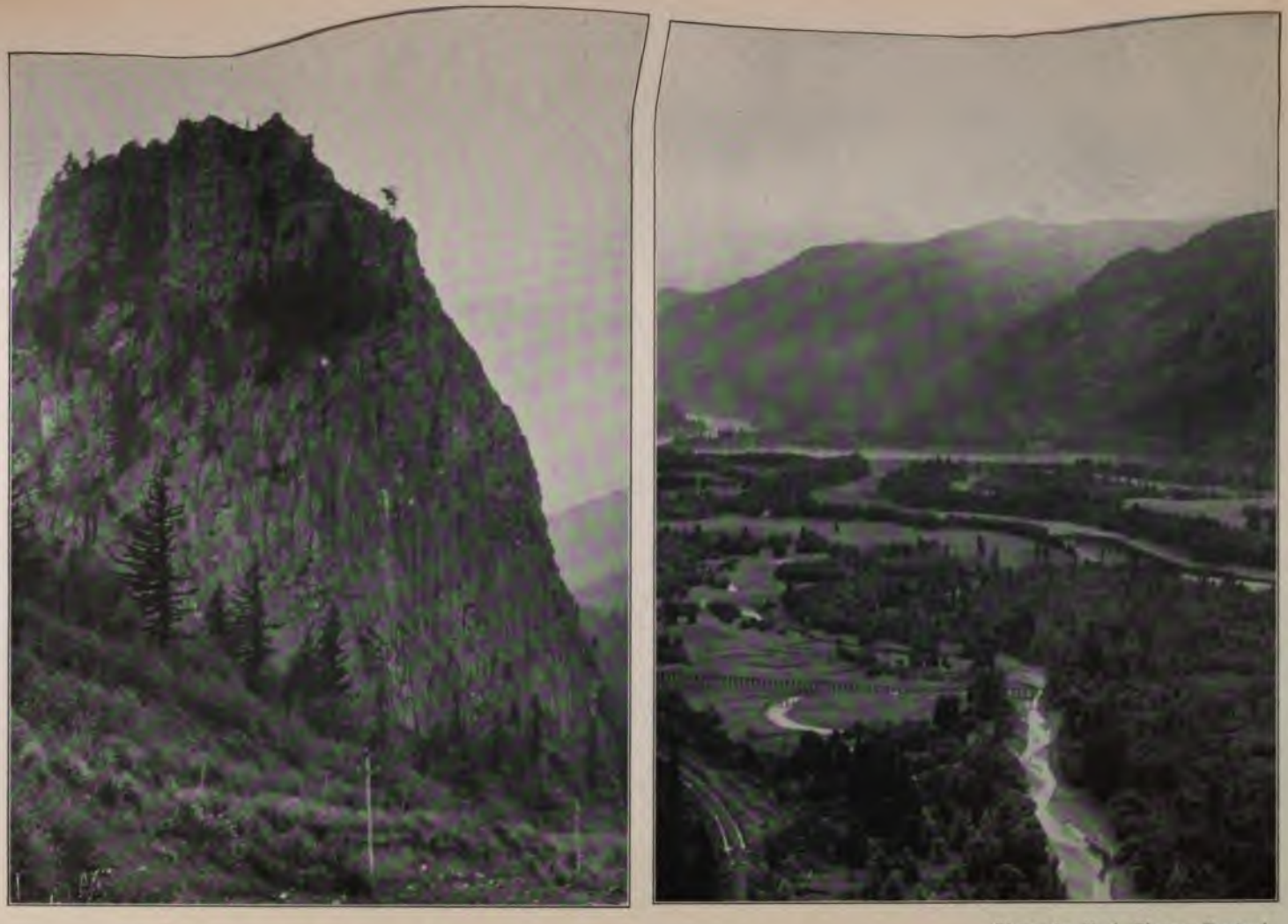
There is, however, an old Indian legend to the effect that a beautiful Indian princess named Wehatpolitan had climbed to the top of the rock. She was, so the story runs, in love with a young chief of a neighboring tribe and when she was sought by her lover in marriage her stern father denied the request and killed the messenger. The lovers, however, were secretly married and met often, unknown to the father. After a time the father gave Wehatpolitan to a chief whom he favored. This chief kept close watch of the princess and soon discovered her secret meetings. Upon the news being imparted to the father he invited the unfavored lover to his lodge, promising to forgive him and that he and Wehatpolitan would be duly wed. This, however, was but a ruse and when the expectant lover arrived at the lodge he was seized upon and slain. Soon after this Wehatpolitan gave birth to a child and when the stern parent decreed that the child should share its father's fate Wehatpolitan caught up her child and disappeared.

In vain the tribesmen searched for her. Next day they could hear wailings from the top of Castle Rock and discovered that the poor girl with her child had climbed that seemingly impossible height. No one dared venture to climb up and save Wehatpolitan and on the third day the wailings ceased. Then the half-crazed father attempted to reach his daughter and he seemed to have succeeded, for at last he disappeared among the crevices of the rock high up toward the summit. He never returned and it was thought that upon reaching the top and finding the bodies of his daughter and the child had given up hope of being able to get down and so had lain down with them and died. And thus runs the Indian legend of Castle Rock.

Since 1901 a few small parties have succeeded in climbing to the summit of Castle Rock. A party of Mazamas, under Mr. Benefiel, made the climb in 1912, but on October 11th, 1914, the Mazamas made an official climb of the rock and 47 persons reached the summit, this being by far the largest party which has ever stood on its summit at one time. Mr. E. C. Sammons was the leader of the party and to make sure that everything would be in readiness for the main climb, he made a preliminary trip two weeks before. Mrs. C. E. Dillinger, better known to the Mazamas as "Auntie"; Miss Anne Dillinger, Sammons and the writer made up the party. We left Portland on October 3, arriving at Butler at 7:30 P. M. Here we left the train and with somewhat heavy packs hiked about two and one-half miles to our camping place on a small creek about a quarter of a mile from the base of the rock. This was a perfect location for a small camp. We soon had a good fire burning and then "Auntie" toasted pumpernickel and prepared beef bouillon—a delicious repast before retiring.

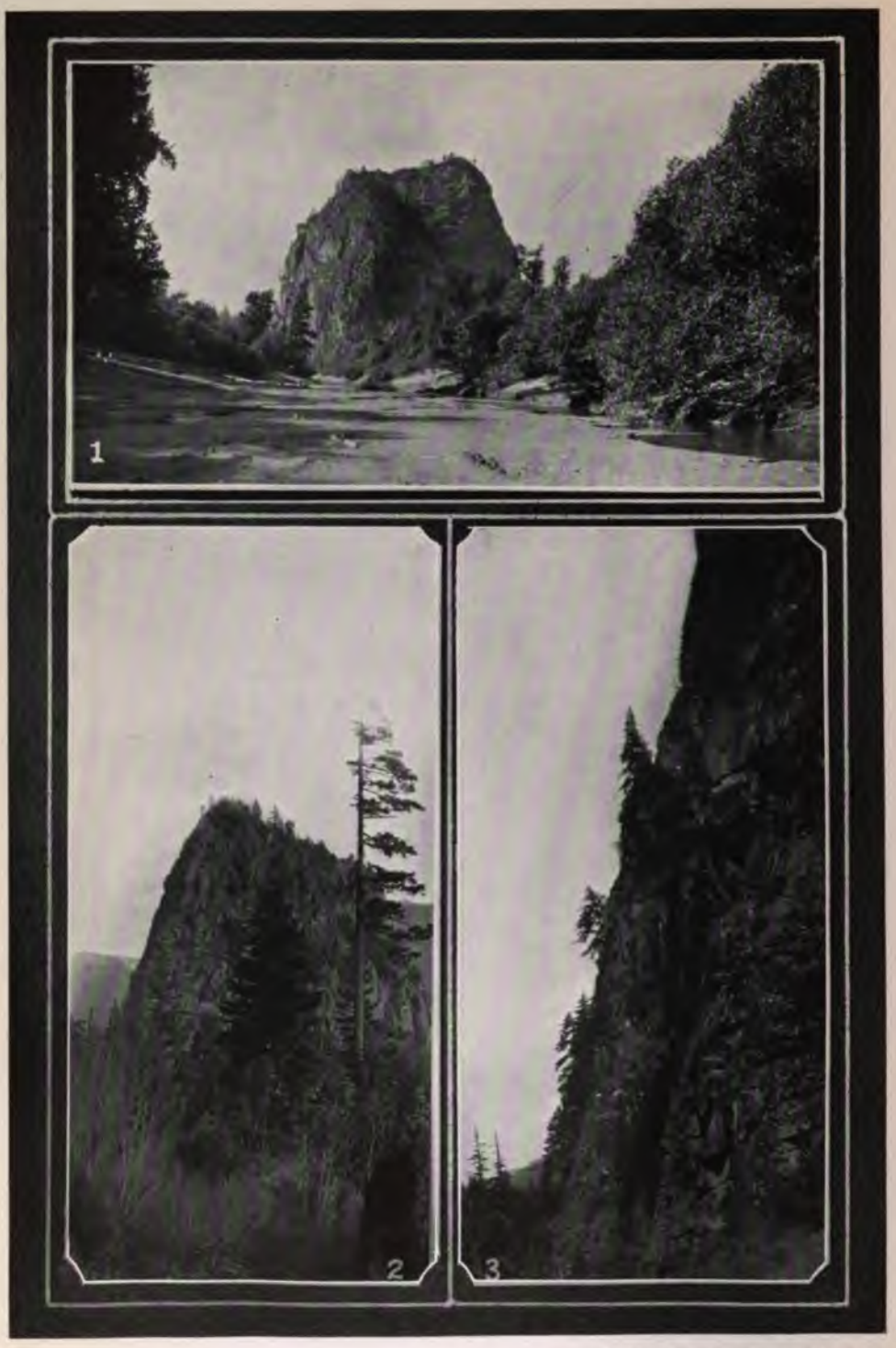
After an early breakfast Miss Dillinger, Sammons and I started the climb, leaving "Auntie" to guard camp and to have dinner prepared for us when we returned. With little difficulty we found the dim trail up the west side of the rock, this being the only practical route to the top. When you stand near the base of Castle Rock and, looking upward, have the trail pointed out to you, you little wonder that it was long thought to be an impossible climb. The rock overhangs in places and the rest of the way is just about perpendicular. It is only by working back and forth along the narrow ledges and occasionally pulling yourself up sheer faces of rock by means of the scant shrubbery or a tuft of grass (and sometimes with your nose and eyebrows) that you are able to reach the top.

The most difficult part of the climb is met when about half way up the rock, or about 600 feet above the ground. Here the trail ends



Photos by H. J. Thorne, Portland.

Left—Castle Rock, an isolated tower of columnar basalt 1146 feet high, on north bank of Columbia River 40 miles east of Portland.
Right—View looking east from summit of Castle Rock, showing rugged cliffs of Oregon shore.



Photos by C. W. Howard, Portland.

Castle Rock. 1—View showing east face. 2—North and west front, route of Mazama ascent. 3—A grand rock climb; west side.

at the bottom of a chimney leading to the base of a bald face of rock about 60 feet high and entirely devoid of vegetation. There are no crevices for hand or foot holds, and to negotiate this chimney and rock face the first climbers had drilled holes and set some iron spikes, by which one could pull himself up. A rope was afterward hung from above. On our reconnoitering trip we found that some of the spikes had become loose enough to become dangerous and that the permanent rope was badly rotted. We stopped here long enough to re-drill the old holes and set in a few additional pins. We also hung a new 70-foot 1-inch rope to replace the old one. Setting the pins on this place was adventuresome work. First Sammons and then myself took turns at it, being suspended in mid-air, as it were, by a painter's noose made in the large rope. Hanging over the wall added zest to the sport, but I was glad that the rope was new and in perfect condition.

This dangerous place once surmounted, the balance of the climb is made without especial difficulty, though one must constantly be on the alert for falling rocks and lest he make a misstep, any one of which might prove fatal. We remained on the summit long enough to take a few photographs and then retraced our steps. When we had dropped down off the rock face and through the narrow chimney Sammons, who was in the lead, threw his weight on a dead fir tree, about 6 inches in diameter, to let himself down to a lower ledge of rock. The tree, which had nearly rotted through at the base, snapped under the extra weight and went down with Sammons, while Miss Dillinger and I held our breaths in horror. It was only rare presence of mind and a skillful twist of his body that enabled him to throw himself inward, while falling, onto the first ledge of rock about 8 feet below. He landed in a heap with his feet hanging over a sheer precipice of about 200 feet.

On the official climb two weeks later, because of the large number of women who were inexperienced in difficult rock climbing, our leader, Mr. Sammons, hung a number of ropes over the more dangerous places. This proved a wise precaution, for the rains of the week before had made the footing most unsatisfactory, especially where there was a scum of earth and decayed leaves on the sharply sloping basalt ledges. In the main climb one or two persons were struck by small rocks dislodged by the climbers above, but otherwise what is probably one of the most ambitious climbs on the "Local Walks" schedule of the Mazamas came off successfully and with credit to the organization. An official Mazama record box and register were left on the summit.

The owners of Castle Rock contemplate blasting a winding horse trail to the summit, that tourists may have the advantage of that most wonderful view of the Columbia River. The view from the rock is magnificent, one being able to see for miles up and down the Columbia River gorge.

Those who made the official Mazama climb were: R. W. Ayer, C. E. Blakney, H. G. Burco, L. F. Buck, T. R. Conway, William Clarke, Geraldine Coursen, A. M. Churchill, Lella L. Dean, L. P. Dellaire, Edith Ellis, Pearl Ellis, F. J. Glover, Charlotte M. Harris, Pearl Harnois, A. R. Hine, R. W. Heston, R. T. Johnstone, D. M. G. Kerr, Joseph Lind, P. C. Lind, D. G. Lebb, Dr. C. V. Luther, F. P. Luetters, Edith Moore, R. W. Montague, Caroline Montague, Martha Nilsson, Anna D. Nickell, P. G. Payton, E. F. Peterson, Arthur Peterson, Florence Prevost, John Pauer, George X. Riddell, Osmon Royal, C. W. Roblin, Rhoda Ross, Lena Searing, Georgia Smedly, George F. Scott, J. C. Sharp, C. J. Sieberts, H. J. Thorne, A. B. Williams, Louis Waldorf and E. C. Sammons, leader of the expedition.

Four Days in Bourgogne with the Club Alpin Francais.*

By Beatrice Young.

When I learned that the Club Alpin had two trips scheduled for the Easter holiday—one for alpinists and the other for its less intrepid members—I hesitated between the Jura and Bourgogne. Being yet new to the Club and ignorant as to how strenuous its mountaineering trips might be, I decided that the part of wisdom was to choose the easier trip, as it would be much happier for me to return with my love of exercise unsatisfied than to create a bad impression of Mazama prowess by attempting a series of ascents that might prove too much for me in my out-of-training condition.

We left Paris Friday evening, April 10th, and passed the night at a little town called Les Laumes, near the center of the Department of Bourgogne, about half way I believe between Paris and Lyons. There were 18 or 20 in the party. Monsieur Malloizel, our leader, had written ahead to engage accommodations all along our route, so that we were always welcomed by smiling inn-keepers, provided with comfortable quarters, and served with appetizing repasts.

Monsieur Malloizel also bought all the railway tickets, each member of the party having been required to carry his certificate of membership in the Club, to wear his Club pin, and to register on a printed form with which Monsieur Malloizel was provided. These formalities were necessary in order for us to enjoy the half fare rates allowed to the Club Alpin by the railroads.

Saturday morning before eight o'clock we set out in carriages to visit the village of Flavigne, situated on the high summit of a distant hill. Our carriages were little hacks, with two long seats facing each other, drawn by fat and happy looking horses. The weather was perfect—bright spring sunshine with no wind. The roads also were perfect—broad white ribbons, smooth and hard and gently sloping, bordered on each side with tall trees set at intervals of 12 or 15 yards.

We saw the village long before we reached it, and had time to remark the remnants of its ancient fortifications, still standing round the outskirts of the little city, the hillside dropping away abruptly beneath the walls, stretching off into a fertile valley in the distance. At length we passed beneath the archway of the old city gate, flanked

*Written in April, 1914. Miss Young, who was formerly Historian of the Mazamas, experienced some of the horrors of the great European war while at Brussels, Belgium.—[Editor's Note.]

by tall stone towers whose tiny lookout windows and little slits for guns betrayed their grim purpose of former times. Still climbing through narrow, winding, cobble-paved streets, we arrived at an open square, in the middle of which was a fountain. Here we left our carriages. I was disappointed to find the fountain very modern—erected I think in 1902—but I was consoled by the observation that it seemed to be absolutely the only thing about the place that did not savor of antiquity, and I was told that it had replaced a predecessor that had stood in the same spot for centuries.

The other members of the party were always very kind about explaining things to me, supplying dates and details from their guide books, and often smiling at the number of my questions. I in turn smiled occasionally at the oddity of theirs, as it frequently happened that after discussing points of interest as we passed, they would say, "Your churches are different in America, I suppose," or, "You haven't any such beautiful gardens in America, have you?" Which, of course, led me into recounting the glories of my native land. Several of the gentlemen were exceedingly well informed geographically with regard to America, but I found that they all had very queer ideas as to our buildings and the plan of our cities and farms.

To return to Flavigne: The little church in the center of the village, dating from the thirteenth century, with its wonderful wooden choir stalls elaborately carved into scrolls and figures of saints and virgins, prepared us in a way for the ruins of the ancient abbey to which we next repaired. The abbey was founded somewhat earlier than the year 800. We entered a dark, musty, underground crypt, where candles held aloft disclosed a low, vaulted ceiling. The pillars which supported it were quaintly sculptured, the figures having the peculiar expressionless appearance characteristic of the art of early centuries. Above were lofty chambers, now turned to the prosaic usage of a candy factory. It seems that the water of the village fountain is supposed to be especially adapted to the manufacture of little annis seed lozenges. They are really very good, these little candies; whether they owe their excellence to this special brand of water or not I cannot say. The factory is a very crude one, hardly worthy of being called a factory, but the annis candy of Flavigne enjoys quite a reputation throughout France.

The village itself is a group of low brick or stone houses of one or two stories, lining narrow streets that turn and twist most unreasonably and are horribly paved with cobble stones. There are many little niches in the walls next the streets, sheltering figures of the Virgin or the Christ. Occasionally a really beautiful carved stone door or window frame attracted our attention. I was interested to note here and

in all the other villages we entered, many windows stopped up with brick and mortar, testifying to the sacrifices of the poor under the exorbitant window tax.

Few of these houses look comfortable, none look sanitary, but all wear an air of satisfied antiquity. Near the edges of the village are a few separate dwellings, "villas," they are called, which are larger and more pretentious, usually surreunded by a high wall with an iron gate, through which we caught a glimpse of the garden. Flavigne is typical of all the villages we visited; the same style of low houses, built wall-to-wall along the crooked streets, prevails everywhere.

Entering our carriages again about ten o'clock, we drove along another perfect road to a second hill top a few miles away, where we examined the ruins of Alésia, one of the towns that we all have to read about in school when we translate Caesar's Commentaries. It was here that the conquering Roman vanquished the last courageous general of the Gauls, Vercingétorix, whom he afterwards took to Rome and gloriously beheaded, while extoling his own achievements. In 1862 Napoleon III caused to be erected on a near-by eminence a gigantic bronze statue of the Gallic chief. The monument looms alone on a barren summit perhaps once scaled by the hapless general and his soldiers.

In 1906 a group of scientists searching for evidence of Caesar's occupation of Alésia, uncovered an elaborate development of Roman architecture. There are stone remnants of theater, temple, forum, aqueduct, dwellings and many statues more or less intact. These commentaries, the product of Caesar's energy, are probably more reliable and a greater tribute to his genius than those which issued from his pen.

We returned to Les Laumes for lunch, which was a lengthy repast of many courses. (Our lunches and dinners were always long and bountiful and very social, with a great deal of laughter and conversation. Breakfasts, on the contrary, were a bit abbreviated, from a Mazama point of view—the usual "continental" breakfast of hard rolls and coffee, not even butter.)

After lunch we journeyed about half an hour by train to Montbard, where we were soon installed in an agreeable hotel. We wished to visit the Abbey of Fontenay, said to have been founded in 1118 by two uncles of Saint Bernard. Most of our party went in carriages, but I with several others preferred to walk. Those delightful roads were to me a constant temptation, and the only reason I contented myself at all in the carriages was that there was seldom time enough between trains or excursions to cover the distance on foot.

The abbey is now in possession of a gentleman of means who

maintains the entire property in a state of great beauty. The road winds through broad parks, beautifully wooded, with a stream crossed by artistic stone bridges, through a large gateway and on to the square open court, where one finds a large lawn with a fountain playing in the center. On all four sides are the stone buildings of the abbey, the lofty church with its columns and Roman arches, the residence sections, and the work shops, austere and solemn, majestic examples of the simpler Roman architecture.

We dined and spent the night at Montbard. I learned that this little town was the former residence of the powerful Dukes of Bourgogne; in 1389 Charles VI honored the spot with a long visit from his royal self; Jean Sans Peur spent part of his youth here; here in 1423 Phillipe le Bon celebrated with pomp and ceremony the marriage of his sister, the famous Anne of Bourgogne, to the Duke of Bedford; Eugene Guillaume, the sculptor, was born here; Buffon, the naturalist, lived here. his residence now being used as a public school, and the public park bearing his name. I suppose all of these villages would yield as rich an historical harvest if one but took time to glean.

Sunday morning (Easter) we spent wandering about Montbard, visiting the park, the old Chateau of the Dukes of Bourgogne, dating from the fourteenth century with a donjon that delves even farther into the antiquated past, and the quaint little church, begun in 1100, completed as it now stands two or three hundred years later. Centuries seem to count for no more here than years do in America; buildings with wings or towers erected in several different centuries are, as everybody knows, not at all uncommon.

Another railway journey brought us to Nuit-Sous-Ravières, whence we proceeded in carriages to the ruins of the Château de Rochfort. This was formerly an impregnable feudal castle. Situated on the summit of a steep hill, its lofty, battlemented towers commanded an extensive view; its deep moat and high wall defied the most intrepid enemies; in case of capture its occupants could escape to the shelter of a friendly stronghold some seven miles distant by means of an underground passage. Now, the dungeons beneath the castle are exposed to the view of any visitor whose courage permits him to descend to their grim and awful depths; the former stately halls are only outlined by fragments of standing walls; the gigantic fire places are in ruins. The spiral stairway of chiseled blocks of stone that mounts the crenelated tower is, however, almost intact. Beside each little lookout slit is still the stone seat of the sentry. On top of the tower there are grass and wild flowers and a little blossoming shrub. The underground passage is visible but not inviting. In the outbuildings, prob-

ably the stables in former times, dwells a peasant family, together with their cows, chickens, cats, dogs and goats, a happy company quite free from the over-refinements of modern luxury.

Dinner at the hotel at Nuit-Sous-Ravières, then the train once more to Ancy-le-Franc, where we spent the night.

On Monday morning we visited the Château de Tanlay, belonging to the Marquis de Clermont-Tonnerre, who had kindly given us permission to see the interior. Although its erection was begun in 1546, this magnificent castle shows no sign of age. It is a beautiful white stone building, with coats of arms carved over all the doors, painted on the walls, reproduced in the tapestries. There is the bed of a former moat, now dry, and a huge square court, round which the building stretches its lengths of halls and galleries, filled with statues and paintings and rare china.

In the dining room is a tall cupboard with glass doors enclosing a set of Sèvres porcelain presented to the lord of the manor by King Charles X. In the Salle des Gardes, among suits of armor and swords without number, is a large painting of Henry III on horseback. In the room where Richelieu is said to have slept, is a life-size portrait of the famous Cardinal, surrounded by eight oval paintings representing sciences and literature. There are countless bed chambers, handsomely furnished in medieval style, one of which, once occupied for some time by Louis XIV, is full of the gilded scrolls and pale satin upholsterings and painted nymphs that were so dear to the Grand King's heart. There is also a most beautiful chapel, whose ceiling is one large painting representing the Eternal Father surrounded by the eight Beatitudes, the four great Prophets, and the four Evangelists.

We had observed a very odd fountain at the edge of the park, some distance from the château. A stone pyramid rose above it, and we speculated as to what this might be for, or what it was supposed to represent; but we could reach no conclusion and the pyramid remained a sphynx, inexplicable. From the windows of the castle, however, we discovered in this pyramid a peculiar power. It was an eye-deceiving device, giving the impression, as one looked at it from a distance, of a beautiful broad avenue leading far, far away. Such is the power of perspective. It certainly made a charming view from the castle windows.

The afternoon was spent at the Château de Coligny, another castle very much like the first one except that its former moat has been transformed into a beautiful canal of clear running water. At the place where the streams unite in the park is a picturesque stone structure, forming a sort of bridge across the big canal, with cascades playing underneath. This is called the Château d'Eau, or Castle of Water. It is very beautiful.

Tuesday morning we were at Saint Florentin, a village situated at the confluence of two small rivers and touched also by the Canal of Bourgogne. We saw this canal repeatedly all along our route. I was greatly impressed with its beauty. My fellow travelers explained to me how exceedingly useful it was, but I could think of nothing so much as how delightful it would be to walk for miles and miles along its gently-curving, grassy banks, where tall trees shade the smooth white road and every little while one sees a modest whitewashed brick cottage overlooking a set of locks. The lock-keepers are invariably an elderly peasant couple, who sit sunning themselves before their door, caressing their dogs and cats. (French people "adore" dogs and cats, no less in Paris than in the country.)

Saint Florentin, once a Roman military post with a Latin name, received its present appellation because of the death there of Saint Florentin, a Christian martyr of the third century. A church erected five or six hundred years ago now covers the tomb of the martyred saint. In this church are wonderful colored glass windows, a hundred panels portraying scenes of Saint Florentin's life. The figures are portraits of the wealthy individuals who bestowed these windows upon the community. It was customary, whenever a noble or a pious burgomaster presented a window or a painting to the church, to weave into the masterpiece the features of the donor and his family, in the guise of saints or angels.

Leaving the church, we visited the remains of fortifications, which still stand near the village, and the ruins of an ancient priory on the summit of a shady hill.

Before noon we arrived at Villeneuve-sur-Yonne, which has one of the prettiest stone bridges across its little river, the Yonne, that I have ever seen. Here also are quaint old houses and crooked rocky streets, with the little church in the center and remnants of the old city wall surrounding the town. Two very picturesque city gates are well preserved, and one huge donjon tower, built of brick, perfectly round, with narrow, vertical slits in its walls.

Our final stop was at Sens, a little city of about 15,000 people, renowned for its beautiful cathedral. Saint Louis (Louis IX) was very fond of Sens. He spent much time here, was married in this cathedral, and placed here the Crown of Thorns which he brought from the Holy Land upon his return from the Crusades. Later, when the case for the crown was finished at the Sainte Chappelle at Paris, Saint Louis came for it in person, and there was a long and solemn ceremony at the cathedral. There is a large and remarkably beautiful painting in Bishops' Council Chamber of the Cathedral, showing Saint Louis carrying

the crown. (I saw this crown at Notre Dame, at Paris, on Good Friday, enclosed in its glass case, encrusted with gold and diamonds, being reverently kissed by thousands of devout Catholics.)

The Cathedral of Sens is very large, partly Roman and partly Gothic in architecture, with two square towers flanking its façade, somewhat resembling Notre Dame at Paris. Its erection dates from 1520. The immense windows of colored glass, portraying scenes from the life of Christ and the saints, are very beautiful, as are also the many sculptures and paintings that adorn the walls. The altar is surrounded by four colossal red marble pillars and is profusely ornamented with gold. Behind it are the tombs of the Dauphin Louis (son of Louis 15th and father of Louis 16th) and his wife, surmounted by large white marble groups representing Religion and Immortality.

A spiral stairway leads to the treasure room, which is full of sacred relics and clerical treasures of all sorts—garments and altar accessories used by saints and kings, rings, jewels, vases, talismans, manuscripts.

Beneath the body of the cathedral we visited the dungeons, horrible places where heretics were buried alive, far from the light of day. There are heavy chains, and the walls are rudely carved with script and figures, showing how the prisoners tried to drown the horror of their confinement in futile occupation.

Sens has several other churches, which are smaller but not less interesting. We had only time to visit one or two of these, as our train left for Paris early in the evening and we had therefore to return to the hotel in time for an early dinner.

When our train pulled into the Gare de Lyon, after a short four hours' journey, and we shook hands all around and said good-bye, I think we were all sorry that our four days of pleasant traveling were over. I at least shall always remember my journey in Bourgogne as not only a thoroughly delightful trip, but as an agreeable initiation into the Club Alpin Français. All the members of the party were most cordially friendly, and I found that though they spoke different language and honored a different flag from ours, their hearts seemed quite the same as those that will beat around the Mazama campfire at Mt. Rainier next August.

Official Mazama Ascents of 1912 and 1913.

Following is a list of the members of Mazama parties who gained the summits of the mountains climbed during the outings of 1912 and 1913:

North Side of Mount Hood, July 15 to 29, 1912.

Almy, Miss E. Louisa
Ayer, Roy W.
Anderson, Dr. Frederick
Anderson, Leroy E.
Armstrong, Miss Edna
Bide, Miss Gertrude
Banfield, Miss Alice
Benefiel, Francis W.
Bronaugh, Master George
Bronaugh, Jerry E.
Bullivant, Miss Anna
Carroll, Randolph S.
Clason, Miss Myrtle M.
Cooper, Miss Frances
Cooper, Miss Mabel
Dillinger, Miss Anna C.
Ehmsen, Miss Ella
Ellis, Miss Edith
Enwer, Eugene C.
Faber, Miss Gertrude E.
Ferguson, E. E.
Goldapp, Miss Martha O.
Hansen, Miss Millicent
Harrison, Jack
Hart, Miss Blanch
Hardesty, William P.
Hayek, Miss Catherine W.
Henthorne, Miss Mary C.
Hibbard, Wayne E.
Kelsey, Miss Lela
Lee, John A.
Luetters, F. P.
Luther, Dr. C. V.
McBride, Walter S.
McLennan, Miss Margaret
Mackie, Miss Gladys
Mason, J. M.
Morgan, Mrs. C. N.
Murby, Dr. A. T.
Newlin, Harold V.
Nilsson, Miss Martha E.
Piercy, Dr. A. F. (Oakland, Cal.)
Prentiss, Arthur M.
Prouty, H. H.
Riddell, George X.
Riddell, Hayward H.
Riddell, Master Morse
Riley, Frank Branch
Rockwell, Miss Marie A.
Rustin, Miss Marie
Sammons, E. C.
Silver, Miss Elsie
Spence, Will A.
Thomison, Joe D. (Hood River)
Walton, Morris
Weister, George M.
Williams, A. Boyd
Williams, Miss Marie
Winter, C. L.
Yoran, W. C. (Eugene)
Yost, Miss Elizabeth
Young, Miss Beatrice

South Side of Mt. Adams, August 1 to 17, 1912.

Allen, Arthur A.
Anderson, Dr. Frederick
Anderson, LeRoy E.
Ayer, Roy W.
Ballou, O. B.
Banfield, Miss Alice
Barck, Dr. Carl (St. Louis)
Benefiel, Francis W.
Benefiel, Jack W.
Bodley, R. M.
Bronaugh, Master George
Bronaugh, Jerry E.
Burling, J. J.
Cochran, H. H. (Minneapolis)
Cory, Ray (White Salmon, Wn.)
Coursen, Edgar E.

South Side of Mt. Adams, August 1 to 17, 1913—Continued.

Coursen, Raymond E.
Crout, Miss Nellie
Currier, G. H. (Rainier, Ore.)
Dillinger, Miss Anna C.
Faber, Miss Gertrude E.
Filloon, Ray M. (Trout Lake, Wn.)
Freeman, Miss Ethel
Geballe, Miss Pauline
Goldapp, Miss Martha O.
Gorman, M. W.
Hardesty, William P.
Henthorne, Miss Mary C.
Heyer, A. L., Jr.
Huddleson, Dr. J. H. (New York)
Johnson, Henry G.
Kuhnhausen, Elvier
Kuhnhausen, Oliver
Kuhnhausen, Robert
Kuhnhausen, Miss Sophia (Glenwood, Wn.)
Luetters, F. P.
Luther, Dr. C. V.
McQueen, Stuart A.
Mansfield, E. A. (White Salmon, Wn.)
Miller, Miss Beulah
Monroe, Miss Anne Shannon
Newlin, H. V.
Nilsson, Miss Martha
Norman, M. Oscar
Parker, A. A.
Pauer, John
Peterson, Arthur S.
Peterson, Edwin F.
Peterson, Miss Laura H. M.
Pfaender, Miss Freda
Pooler, Miss Catherine (Salem, Ore.)
Richardson, Miss Nettie G.
Riddell, George X.
Riley, Frank Branch
Ruby, Professor H. S. (Walla Walla, Wn.)
Sammons, Edward C.
Sammons, Miss Reta
Schneider, Miss Marion
Scott, George F.
Sharp, J. C.
Smith, W. L.
Thaxter, Professor B. A.
Varley, J. A. (Everett, Wn.)
Ward, Pete (Roosevelt, Wn.)
Williams, A. Boyd
Wilson, Miss Helen C.
Wilson, R. M.
Weichelt, O. H. (San Francisco)
Yoran, W. C. (Eugene, Ore.)

Mazamas on Mt. Hood, July 5, 1914.

By Anna C. Dillinger.

On the afternoon of July 3rd, a large party of Mazamas and a number of persons who desired to qualify for membership left Portland to climb Mount Hood, the mountain of which every Oregonian is justly proud. They went by automobile to Rhododendron Tavern, which is situated in a very pretty spot in the Cascade Range, about 15 miles from the base of the mountain. A 48-mile ride in an easterly direction from Portland through forests and small outlying towns brought the party to Rhododendron, where a sumptuous dinner was enjoyed, after which they repaired to their camp. Fires were built and a pleasant evening enjoyed. As it was the desire to break camp at an early hour on the morning of the Fourth, the majority of the party retired early. After a good night's rest and an early breakfast prepared by the numerous chefs of the party, thereby disproving the old adage that "Too many cooks spoil the broth," the party began the walk of nine miles to Government Camp. Frequent stops were made to admire the rhododendrons which bordered the road with their pink and white blossoms, and not a few made the trip to Yocum Falls over a much unused trail. All were ready for lunch after the leisurely hike to Government Camp and as the commissary was well supplied, everybody celebrated the Glorious Fourth by partaking generously.

The remainder of the day was spent in resting and in the journey to the timber line camp (elevation 6000 feet), a distance of four miles. The walk consumed about two hours of time. The sunset from there was most beautiful, the clouds being illumined until 9 o'clock. The reflection of the sun on the sky and on the scattered patches of snow was indescribably beautiful. As the last rays of the sun were visible, we turned our backs to Mt. Hood and to the south, bathed in silvery moonlight, lay Mt. Jefferson, some 40 miles away, yet apparently just a stone's throw down the summit of the Cascade Range.

Some of the party walked to the timber line camp after nightfall and although the moon made the surroundings comparatively light, the trail was hard to follow because of scattered patches of snow on which the footprints of those ahead did not show plainly. Most of the climbers were ready to retire early as they tramped 15 miles from Rhododendron since morning and had ascended about

The view from the summit was one long to be remembered. Mt. Shasta, more than 300 miles to the south, was plainly visible, while at lesser distances to the south were seen Mt. Pitt, Diamond Peak, The Three Sisters and Mt. Jefferson, while to the north and west were those beautiful peaks, Adams, St. Helens and Rainier, the three forming a triangle, which appeared all the world like huge dishes of ice cream. Columbia River, the majestic, wound like a thread through the gorge and various towns along its banks were discernible; but the lower portion of the valley was obscured by a haze which also hid Portland. To the east, as far as the eye could reach, were the wheatfields of Eastern Oregon, with the Blue Mountains in the back ground and in the north foreground the Hood River Valley was so distinct that the rows of apple trees were plainly seen with the naked eye. Cloud Cap Inn, on the north shoulder of Mt. Hood, just below Eliot Glacier (elevation 5800 feet), was plainly seen.

The climbers registered at Mazama Rock and the descent was begun, over the same route taken on the upward climb. After the ropes were left, glorious coasting was enjoyed for almost the entire distance down the mountain side. At the time the stages were boarded for Portland, summit badges were presented to the successful climbers. It is the intention of the Mazamas to make an annual pilgrimage to Mt. Hood, probably at this same time of year.

Following are the names of the persons who successfully reached the summit:

A. H. Abel, Arthur A. Allen, J. H. Anderson, Roy W. Ayer, Frank Bateman, Byron J. Beattie, Wm. Black, Elsie Brown, Mabel Babcock, Mrs. Roy Brooks, C. E. Blakney, Minna Backus, Albinia Boyd, J. C. Bush, H. G. Burco, Lillian G. Cowie, May Chenoweth, Raymond Conway, May Chalmers, F. N. Clark, F. L. Campbell, I. C. Campbell, Mrs. C. E. Dillinger (67 years old), Anna C. Dillinger, Nellie M. Dalcour, Lella L. Dean, William Ehrman, Fred L. Everson, Ethel Freeman, G. R. Frazelle, E. F. Furrer, Miss Theo Hale, A. H. S. Haffenden, Walter Holt, J. H. Hendricksen, Robert E. Hitch, A. L. Heyer, Jr., C. H. Jackways, David Jack, Geo. Jackson, Mrs. Geo. Jackson, Frank I. Jones, Leota Jones, H. P. Kennedy, F. P. Luetters, Maude Langley, Elmer Lenheuer, Elsa Leppich, Sylvester Lawrence, John A. Lee, Pearl Lee, J. C. Martin, J. L. Martin, Bess McCarty, L. McCarty, Archie Munger, A. R. Munger, R. C. McGonigle, Royce McCandliss, W. C. Morse, C. J. Mathis, Geo. McIntyre, Adriane McDaniel, Ida McDaniel, B. W. Newell, Anna Nickell, Alfred F. Parker, A. H. Pope, Mary E. Powell, Esther Penwell, Neva Patterson, Hugh Pastoriza, Houston, Tex.; Florence Prevost, Paul B.

Powers, Olive F. Predmore, C. Phillips, Mabel Phillips, G. L. Rauch, Lyman L. Reist, Ella P. Roberts, Archie Russell, Anna B. Russell, Lena M. Searing, R. E. Searcy, Georgian E. Smedley, Nell I. Spurck, E. N. Smith, Hart K. Smith, F. Stillman, Dr. L. N. Smith, J. Claude Sparks, Dr. John D. Sheehan, Mrs. Nellie Starr, L. P. Sullivan, Curtis E. Schindeldecker, A. G. Tindolph, Douglas W. Taylor, Gladys Tassie, E. W. Towne, Julian Tuttle, J. T. Urquhart, Gretchen Backus VanVleet, Coloma M. Wagnon, Louis W. Waldorf, C. J. Walker, J. H. Walker, Keith M. Walker, Fred Wegman, Vesta Wilburn, A. Boyd Williams, Minnie Williams, Helen Wilson, J. C. Wilson, H. M. Wolfe, Chas. H. Wortman, W. J. Youmans, Mrs. W. J. Youmans.

The Mazama Club Rooms

The first permanent clubrooms of the Mazamas were formally opened to members with a reception on Saturday, November 28, 1914. Nearly 200 Mazamas and friends called during the afternoon and evening. Officers and former presidents, together with committeemen were in the receiving line, and a programme of speeches followed. The club rooms, Suite 213 and 214 Northwestern Bank building, constitute the first home that the Mazamas have ever been able to call their own. About ten years ago the club had a room temporarily at its disposal in the City Hall building, but the organization has never done anything toward establishing and furnishing headquarters of their own.

The quarters are modestly furnished, mostly with furniture and pictures contributed by members of the society. It is hoped to make the place the show room of the state for mountaineering photographs; a library is also being assembled. The club will welcome books and pictures from members. From the observatory on the roof of the 15-story building in which the quarters are located, the Mazamas have at their command one of the grandest sights obtainable in the United States, insofar as mountain scenery is concerned. Four snow peaks—Mount Hood, Mount Adams, Mount St. Helens and Mount Rainier—are plainly seen on any clear day.

The rooms were furnished by a committee composed of H. H. Prouty, chairman; Mrs. Frank Branch Riley, Miss Edith Ellis, R. L. Glisan and A. B. Williams. Members and visitors are welcome at any time.

Mazama Outing for 1915

The Mazamas have decided to make Mt. Shasta the objective point for their outing of 1915. This mountain was chosen primarily to make it possible for those who may desire to do so, to visit the Panama-Pacific Exposition at San Francisco in connection with the annual outing. We hope also to arrange to visit Crater Lake en route, and also those who wish may make a detour and visit the famous caves of Josephine County, near Grants Pass.

Arrangements will probably be made whereby a stop-over will be allowed at Grants Pass, Medford and Sisson, on the special exposition ticket allowing an opportunity to visit these various points of interest en route. The Josephine County caves are 34 miles from Grants Pass; Crater Lake is about 80 miles from Medford, and Mount Shasta (permanent camp of the Mazamas), being about eight (8) miles from Sisson, Cal., over a beautiful trail.

The fame of Crater Lake is world-wide and it is not necessary to dwell at length on its scenic grandeur, which certainly entitles it to be classed as the eighth wonder of the world.

Mt. Shasta, also, is different, and has its own attractions. It rears its great height, 14,380 feet, above a great plain, as it were, there being no other high mountains near it. The view from the summit covers great distances, and often includes a view of the Pacific Ocean. Many very interesting ascents of the mountain have been made by famous people, and many successful observations have been made from there. On one occasion Mr. B. A. Colonna remained on the summit nine days and nights taking observations. He succeeded in making a trigonometrical measurement from the summit of Shasta to the summit of Mt. Helena, a distance of 192 miles, the longest ever made.

At one time Mr. John Muir, with a guide, remained on the summit all night in the month of April, against the advice of the guide, and they were caught in a snowstorm. They must certainly have perished but for the hot sulphur spring, which is near the summit. They saved their lives by lying all night in the warm mud near the spring.

Mrs. Sisson, an early pioneer of Sisson, made it a rule of life to climb Shasta every ten years, and followed this faithfully until she was compelled to abandon it on account of age. John Sisson, her husband, settled near the mountain at a very early day. The town of Sisson, on the Southern Pacific, being only eight miles from timber line, is the most convenient railroad point from which to make the trip to the mountain and the various points of interest near by.

LE ROY E. ANDERSON.

Mazama Organization for the Year 1914-1915.

OFFICERS

J. E. Bronaugh (703 Title & Trust Bldg., Portland).....*President*
Frank Branch Riley (510 C. of C. Bldg., Portland).....*First Vice-President*
Geo. X. Riddell (858 Weidler Street, Portland).....*Second Vice-President*
E. C. Sammons (69 East 18th Street, Portland).....*Corresponding Secretary*
Mrs. Eleanor G. Sheldon (822 Halsey Street, Portland)..*Recording Secretary*
Miss E. Louisa Almy (Route 2, Hillsdale, Ore.).....*Financial Secretary*
William P. Hardesty (419 City Hall, Portland).....*Treasurer*
Miss Mary C. Henthorne (Central Library, Portland).....*Historian*
Leroy E. Anderson (51 Washington Bldg., Portland)..*Chm. Outing Committee*

COMMITTEES

House Committee—H. H. Prouty, Chairman; Mrs. F. B. Riley, R. L. Glisan, A. B. Williams, Miss Edith Ellis.

Entertainment Committee—Dr. C. V. Luther, Chairman; F. P. Luetters, Miss Gertrude Bide, Miss Ethel Freeman.

Outing Committee—Leroy Anderson, Chairman; A. B. Williams, Roy W. Ayer, Miss Martha Nilsson.

Publication Committee—E. C. Sammons, Chairman; H. H. Prouty, O. B. Ballou, Miss E. Louisa Almy.

Good Roads Committee—F. B. Riley, Chairman; H. L. Pittock, O. B. Ballou, C. B. Aithchison, E. F. Peterson.

Membership Committee—Miss Anna C. Dillinger, Chairman; O. B. Ballou, T. R. Conway.

Local Walks Committee—W. P. Hardesty, Chairman; Hart K. Smith, P. G. Payton, D. G. Lebb, Miss Anna C. Dillinger, Miss Lella L. Dean.

A Review of the Year.

Principally because of the efficient and harmonious work of the Executive Council and its various committees, and the zeal and enthusiasm of many of the individual members, the year just past must be conceded to have been one of the most prosperous in Mazama history. Our membership has increased just about 100 and is now probably the largest it ever has been. Local walks have been continued weekly and with increasing interest throughout the year. There have been as many as 250 in attendance on a single excursion. The Entertainment Committee have arranged several very enjoyable luncheons, two illustrated talks on Mt. Rainier, the first by L. A. Nelson and the other by T. Brooke White, both members; a lecture on Alaska by Herbert W. Gleason of Boston, and on October 5th they capped the climax with a splendid banquet at the Hotel Multnomah. The magazine published in December, 1913, compares very favorably with any ever published by the Club. It was an expensive book, with many beautiful engravings, yet by the advertisements we were able to secure and the receipts from copies sold, we were able to finance its publication without difficulty.

The annual outing on the north side of Mt. Rainier was a great success in every way. The general attendance was good; there were more experienced mountaineers from widely separated parts of the United States than ever before; the camp fire programs were most varied and elaborate; the climbing and excursions were remarkably successful, and the only criticism that could be made of the commissary was that it was more luxurious than necessary for camp life. Add to all this almost ideal weather and a good time for everybody was the result.

We have paid all our bills promptly and have a substantial sum left in the Treasury. This is a satisfactory condition and we hope will enable us soon to maintain permanent headquarters.

After a year of such success, it seems only just to mention some of the persons who have contributed largely to it: W. P. Hardesty as Treasurer and Chairman of the Local Walks Committee has not only taken good care of our funds, but by his faithful and painstaking attention to every detail in connection with the local walks has made them constantly popular, and through them greatly increased the interest in the Club. We should all appreciate Mr. Hardesty's continued good work. Miss Beatrice Young, as Chairman of the Publication Committee, did excellent work on the magazine, and Mr. E. C. Sammons, because of his familiarity with the work, did splendid service in its publication. The Council was so pleased with his work he was elected Editor of the 1914 "Mazama." Anyone who accepts the position of Chairman of the Outing Committee undertakes no mean responsibility. The splendid success of the Mt. Rainier outing in August, 1914, testifies that Francis W. Benefiel gave it much labor and thought and he and his associates on the Outing Committee are entitled to great credit. Let us all remember that Miss Louisa Almy, as Financial Secretary and Chairman of the Entertainment Committee, does quietly a great deal of work for Mazamas. Mr. J. E. Bronaugh and Mr. O. B. Ballou have both been most willing workers. Miss Anne Dillinger proved herself a wonder by organizing and superintending two large excursions to Mt. Hood in July. On the first 117 and on the second 27 persons reached the summit and returned without accident and helped materially to increase our membership. More success to Anne! Long may she climb! She now wears a beautiful Mazama ring donated by members of her parties. Geo. Riddell and A. Boyd Williams made themselves famous and earned rings also by splendid work exploring a route over Winthrop Glacier to the summit of Rainier and later guiding all safely to the highest point. Of course Frank Branch Riley led the camp fires, more witty and versatile and in better voice than ever. Many othrs, too numerous to mention, have had their part in the year's successes. For the Club and, because you have brought success during my administration, for myself I thank you heartily and congratulate you on the grand results attained.

One of the lessons we may learn is that, with our present membership, any Mazama excursion, outing or lecture may be made successful if only members are loyal.

Another is that it is not so difficult to increase membership even with our severe qualification. There are many who will be glad to qualify if we only give them proper assistance and encouragement. If each Mazama would constitute himself a membership committee of one, how easy it would be to have 500 members in October, 1915! Think how much more we could do with a fixed revenue of $1,500 annually! The success of the Mt. Rainier outing might be an object lesson to encourage us to more ambitious events. I look forward to the time when we can successfully make excursions to the Canadian Rockies. In addition to our experienced mountaineers who have had plenty of difficult climbing, we have many climbers with much endurance and courage, and the more difficult rock and ice work to be found in places there will furnish the needed experience to make them good all around mountaineers.

Let us hope that the zeal and harmony that have prevailed during the past year may continue and that we are just entering a period of splendid accomplishment.

H. H. PROUTY, President.

Mazama Local Walks for the Year 1914.

By W. P. HARDESTY.

The inauguration of regular weekly local walks or outings by the Mazamas took place the first Sunday in April, 1912. Since that time there has been practically no gap in the record of weekly outings of some kind, except for about three Sundays of each year taken up by the annual outing. From a mere handful at first (there were only about 90 names on the first mailing list and only seven persons on the first local walk), the Local Walks "bunch" increased so rapidly that in March, 1913, the attendance on one walk was over 160.

A very large number of non-members has always participated in the Local Walks feature of Mazama activities, so that at the present time there are about 800 persons who are regularly mailed the schedules of walks. It has been found convenient to divide the year into three seasons, requiring a new schedule for each one.

The year 1914 (running from about November 1st to November 1st) has not found the regular local walks proportionally so well attended nor forming so prominent a feature in Mazama life as the year before. This was probably due to the loss of the novelty felt by the members, and also, to a considerable extent, to the formation of parties among the members themselves that took a number of outings not on the regular program.

The following table gives a resume of practically all the official local outings for the year:

Date 1913	Locality or Route	Attendance
Nov. 2	Garden Home to Portland	99
Nov. 9	Fulton to Oswego Lake	75
Nov. 16	Columbia Slough Road	32
Nov. 23	Milwaukie-Gladstone	50
Nov. 30	Mt. Tabor to Errol	63
Dec. 7	Canyon Road—Mt. Calvary	69
Dec. 11	Moonlight walk around Mt. Tabor	36
Dec. 14	Lents Junction—Happy Valley	55
Dec. 21	Lafayette—Lounsdale Orchards	41
Dec. 28	Mt. Calvary—Beaverton	74

1914

Jan. 4	Tualatin to Oswego	33
Jan. 11	Lents Junction to Linneman Junction	79
Jan. 18	Garden Home to Mt. Calvary	72
Jan. 25	Bridgeton—Swifton—Portsmouth	42
Feb. 8	Camas to Vancouver, Wash	52
Feb. 15	Mt. Calvary—Council Crest—Terwilliger Boulevard	95
Feb. 22	Wilsonville to Oregon City	14
Mar. 1	Sherwood—Chehalem Mountain—Newberg	30
Mar. 8	Skyline Boulevard, Whitwood Court to City	125
Mar. 15	Clackamas—Barton	82
Mar. 22	Rocky Butte	100
Mar. 29	Troutdale to Bull Run	51
Apr. 5	St. Johns—Ramsey Lake	140
Apr. 12	Harborton	70
Apr. 19	Wilsonville—Champoeg Park	65
Apr. 26	Wapato to Rex	47
May 3	Archer Mountain (Washington)	58
May 7	Moonlight walk and campfire at Capitol Hill	120
May 9	Week-end to Thors Point, Multnomah Falls, etc	78
May 10	" " " " "	
May 17	North Plains	76
May 24	Boring—Bull Run	55
May 29	Week-end to Molalla and Wilhoit Springs	76
May 31	" " " "	
June 6-7	Angels Rest	47
June 9	Moonlight (Strawberry Picnic)	105
June 14	By chartered steamboat to Woodland, Wash	250
June 21	Sifton—Livingston Hill	48
June 28	Bonneville	102
July 3-5	Newport Beach	37
July 3-5	Dowling's Farm	16
July 8	Moonlight trip to Mountain View	66
July 12	Gladstone—Bellrose Station	45
July 18	Week-end to Red Bluff Mountain, near Stevenson, Wash	21
July 19	" " " " " "	
July 26	Eagle Creek to Bull Run	28
	(Intermission for Annual Outing.)	
Aug. 23	Oswego Lake	40
Aug. 30	Beach on Columbia River	120
Sept. 3	Moonlight at Ross Island and at Yacht Club	100
Sept. 5-7	Clatsop Beach trip	23
Sept. 12	Week-end to Sandy and Dover	8
Sept. 13	" " "	
Sept. 19	Larch Mountain	43
Sept. 20	" "	
Sept. 27	Cazadero	35
Oct. 4	Scappoose	40
Oct. 11	Castle Rock	51
Oct. 18	Burlington—Cornelius Gap	26
Oct. 25	Dundee	32
Nov. 1	Cottrell—Sandy River—Boring	31

REPORT OF THE TREASURER FOR THE OFFICIAL YEAR 1913-14.

Receipts.

Balance on hand October 1, 1913	$ 443.71	
Received from Financial Secretary as collections of annual dues from members	650.34	
Received from same as collections of Local Walks dues	138.00	
Received from same as collections for sales of Mazama pins	108.00	
Received from Business Manager of Publication Com. from sales and advertising for 1913 Magazine	86.44	
Received in refund from the Outing Committee for funds advanced and bills paid	216.50	
Received from President as surplus on June 14th trip	209.25	
Surplus for 1909 outing	10.83	
Surplus for 1914 outing	633.94	
Total	$2497.01	$2497.01

Disbursements.

To Beattie & Hofman for printing, including some post-paid stationery (in 6 accts.)	$ 160.25	
To Hill & Co. for typewriting, mimeographing, addressing, postage, etc. (in 12 accts.)	131.92	
To Butterfield Bros. for Mazama pins, etc. (in 4 accts.)	102.00	
To Chairman of Local Walks for coffee, sugar, cream and minor items of expense for conducting Local Walks	27.99	
Bills of Outing Committee paid	66.50	
Money advanced to Outing Committee	150.00	
Deficit for 1913 Annual Outing	47.00	
Advanced to Pub. Com. for publishing 1913 Magazine	200.00	
Miscellaneous items of expense	44.65	
Total disbursements	$ 930.31	$ 930.31

Balance on hand October 5th, 1914 ..... $1566.70
(This amount to credit of Mazamas in Lumbermens National Bank.)

Correct.

W. P. HARDESTY, Treas.

MEMORANDUM OF DISBURSEMENTS DURING OFFICIAL YEAR 1913-14 PROPERLY CHARGEABLE TO LOCAL WALKS.

Printing of three schedules, 1200, 1300 and 1400 copies	$ 82.75
Postage and stamped envelopes for schedules	34.35
Addressing, folding and mailing schedules and other Local Walks notices	15.10
Mimeographing	6.40
Typewriting letters, etc	1.85
Miscellaneous	1.00
Provisions (coffee, sugar and cream)	26.85
Deficit on trips	9.55
Total	$177.85
The Local Walks receipts from five-cent collections were	$139.35

NOTE—As the above statement was made up from accounts paid from General Fund, where the items properly chargeable to Local Walks could not always be definitely segregated, the statement is only very closely approximate.

W. P. HARDESTY,
Chairman Local Walks Committee.

Notes and Correspondence.

In addition to longer articles suitable for the body of the magazine, the editor would be glad to receive brief memoranda of all noteworthy trips or explorations, together with brief comment and suggestion of any topics of general interest to the club. Descriptive or narrative articles, or notes concerning the animals, fish, birds, forests, trails, geology, botany, etc., of the mountains will be acceptable.

The club would like to secure additional copies of Mazama of Volume I, Number I, 1896; we hope that any member having extra copies will send them to the Secretary.

THE CHIEF FORESTER'S PLAN

Henry S. Graves, chief of the United States Forest Service, proposed during a recent visit in Portland, a plan that should make the people of the Northwest better appreciate their prospect of profit from the National Forests, as well as the interest the Federal forestry officials have in the development of this region.

Counties with National forests within their oundaries now receive from the government 25 per cent of the gross revenue from the sale of timber or the granting of grazing permits in the forests. The money may be used by the county for school or road funds. An additional 10 per cent of the proceeds from the National forests may go for roads within the forest which serve public need. If the timber is inaccessible or lacks a market, the amounts received by the counties under the plan will be small, but the aggregate over a number of years is a large sum.

Chief Forester Graves proposes that Congress advance at least part of the money that would be received by a county or a group of counties during a period of years and permit its use immediately under co-operative direction in the building of permanent roads. He is indifferent as to whether the road should be built inside or outside the forest, so long as it promotes agricultural development or reveals tourist-luring scenery. Since the amount advanced will certainly be repaid out of the counties' proportion of proceeds from the National forests, he is certain there will be no possibility of loss, but on the other hand, the most powerful development agency—the permanent highway—will be provided when most needed.

The plan merits the most earnest consideration; the motive of service that prompts it entitles Mr. Graves to approval.—Editorial, *Oregon Daily Journal*, October 10, 1914.

(Editor's Note.—Mr. Graves' plan is a very good one; it would be of material benefit in constructing highways to our mountains of Oregon and Washington, especially Mount Hood and Mount St. Helens.)

RECOGNITION OF SERVICES RENDERED MAZAMAS.

For distinguished services rendered as guides during the 21st annual outing of the club last August in Mount Rainier National Park, George X. Riddell and A. Boyd Williams were decorated on September 5th with the title of "Mazama Guide." This is one of the highest honors in the society. As permanent mementoes of their achievements, Messrs. Riddell and Williams were presented with diamond rings bearing the official club insignia.

The achievements of the society in a mountaineering way during 1914 are remarkable. Although the north side of Mount Rainier is seldom climbed, and no Mazama had ever visited that portion of the peak, the club broke all records for the size of climbing parties taken to the summit. On the Mazama official climb, Monday, August 10, 71 persons ascended the mountain, the largest number which has ever stood on the summit at one time. Eighty-five persons were taken to the summit in the climbs of the outing. Messrs. Riddell and Williams pioneered a new route up the peak over the Winthrop Glacier and personally conducted all the parties to the summit.

George X. Riddell is probably the best climber in the club. He holds the climbing record on Mount Hood, having ascended the north side from Cloud Cap Inn, via Cooper's Spur, in 1 hour and 57 minutes. This record was established on July 22, 1912. He has also made one of the very few ascents of Mount Hood from the northwest side. Mr. Riddell formerly was a prominent

track athlete at the University of Oregon, being Northwest champion mile runner.

A. Boyd Williams came to Portland from Escanaba, Mich., and has been climbing with the club for three years. He has ascended Mount Hood, Mount Adams and Mount Rainier. E. C. S.

GIRLS BRING HOME DEER. While climbing the cliffs along Tanner Creek, near Bonneville, on a hiking trip in August, Miss Clara Miller and Miss Myrtle Bates, alone and without the aid of weapons, bagged a deer. High on the side of the Columbia River canyon wall they jumped up a deer and the animal, becoming frightened, fell over a 100-foot precipice, breaking its back and neck. With the aid of a homesteader, the girls cut up the deer and brought their unexpected prize home with them. O. B. B.

MR. GLEASON'S LECTURE. Mazamas and friends to the number of 450 were entertained by Herbert Wendell Gleason at the Portland Library Saturday evening, September 26th, with his beautifully illustrated lecture upon the mountains, glaciers and scenery of Alaska. Mr. Gleason has prepared a number of most interesting lectures concerning Pacific Coast subjects, one of which is "Volcanic Peaks of the Pacific Coast." Mr. Gleason was a member of the Mazama expedition to Mount Rainier in 1905. He is one of the best known lecturers upon out-of-door subjects in America. He was born in Massachusetts in 1855, studied at Union and Andover Theological Seminaries and for many years was a Congregational pastor in Minneapolis. Since retiring from the ministry in 1900, because of ill-health, he has traveled extensively and has become known as a lecturer and writer, and above all as a photographer of National parks and of other mountaineering and outdoor subjects. Mrs. Gleason is an artist of rare ability and colors Mr. Gleason's stereopticon slides. Mr. Gleason has illustrated de luxe editions of Emerson, Lowell, Thoreau, Burroughs and John Muir. E. C. S.

We are in receipt of the 1914 roster of the American Alpine Club, edited by Mr. Howard Palmer, New London, Conn. Seven of the membership of 86 are also members of the Mazamas. They are: Allen H. Bent, Boston; Rodney L. Glisan, Portland; John Muir, Martinez, Cal.; Homer A. Rogers, Parkdale, Ore.; Alden Sampson, New York; William G. Steele, Medford, Ore.; Winthrop E. Stone, A. M., Ph. D., LL. D., Lafayette, Ind.; John H. Williams, Tacoma, Wash.

NEW SOUTH SIDE ROUTE ON RAINIER. Joseph Stampfler, veteran guide on the south side of Mount Rainier, has chosen a new route up which to take parties from his camp in Indian Henry's Hunting Ground. He takes the Pyramid Cleaver route to Peak Success, crossing to Register Rock, then returning to Indian Henry's via the same route. This is strictly a rock climb; no glaciers are crossed, and it is understood that very little snow is crossed until a short distance from the summit. GEO. X. RIDDELL.

MOTION PICTURES OF MOUNT ADAMS. J. G. Sill, a Portland motion-picture camera man, is the owner of one of the best mountain films ever exhibited in this city, entitled, "When the Mountains Call." It is descriptive of a journey from Portland to the summit of Mount Adams (12,307 feet) and return. The film shows harbor scenes in Portland, views along the Columbia River canyon and of the dense forests and rugged mountains and farming communities up the White Salmon River valley. The power plant of the Northwestern Electric Company on the White Salmon River was filmed, showing the largest wood stave pipe in the world.

The climbers and adventurers were: R. C. Bruce, Ray Corey and J. G. Sill and Louis Shearer, camera men of Portland; Harold Brown, of White Salmon, Wash., and Ray M. Filloon, of Trout Lake, Wash. Mr. Filloon, a member of the Mazamas, was the guide on the mountain. The party reached the mountain via Morrison Creek, where the Mazamas were camped in 1913, and after exploring and photographing the White Salmon and Klickitat Glaciers, climbed to the top of the peak. On the summit motion pictures were taken of the party registering in the Mazama record book and box. The film will be shown throughout the United States and will be an effective advertisement for the scenery of Western Orgon and Washington. E. C. S.

Prize for Photos of Biggest Trees. The District Forester of Portland, Ore., has received notification that the America Genetic Association of Washington, D. C., has offered two prizes of $100 each for two photographs, one of the largest tree in the United States of a nut bearing species, and one of the largest broad leaf tree which does not bear edible seeds.

Under the head of nut bearing species are the chestnuts, walnuts, butternuts, pecans and oaks, the only native representatives of which group in this region are the Oregon oak and the California black oak. In the second class, that of the non-nut bearing broad leaf species, we have in this section such trees as the broad leaf maple, Oregon ash, red alder and black cottonwood.

Photographs of cone bearing trees are not wanted.

The object of this competition, as stated by the association, is to find out in what regions the native trees attain the largest growth, and under what conditions they thrive best.

October 21, 1914.

Mr. E. C. Sammons, Secretary Mazamas,
Portland, Oregon.

My Dear Mr. Sammons: The proposed Rocky Mountain National Park embraces a mountainous area of a little more than four hundred square miles. The region is an exceptionally scenic one and is easy of access. The fact that it was, during 1914, visited by nearly sixty thousand people will give you some idea of the superior attractiveness of the region. A campaign for the making of this park has been in progress for six years, but the people of Colorado are now almost unanimously in favor of it. The bill for the creation of this park has been resisted and the facts repeatedly misrepresented by the United States Forest Service. The bill, however, has been recommended by the Senate Committee on Public Lands and recently passed by the Senate. It is now before the House, where we will have difficulty in passing it. Any support that you or the Mazamas will give it will be needed, and I beg to assure you that the measure is in every way worthy of your fullest support. Very truly yours,

Enos A. Mills.

Extent and nature of the Park, as defined in report of Chief Geographer Marshall to the Secretary of the Interior, dated January 9, 1913, in House Bill 28,649, 62nd Congress, introduced by Congressman Rucker, of Colorado, and in announcements of Chamber of Commerce committees and Colorado Mountain Club.

The proposed Rocky Mountain National Park is the project heretofore known as the proposed "Estes National Park." At the suggestion of various persons the name "Estes" has been abandoned and the name "Rocky Mountain" adopted, as the former name is somewhat local and meaningless and the latter marks the Park as being a typical area of the mid-continental Rocky Mountains; that is to say, an area of lofty granite peaks and intermountain plateaus.

The proposed boundaries, as agreed upon by all parties, comprise an area of about 700 square miles in north-central Colorado. The Park is an irregular area bounded principally by streams and water divides, about fifty miles long by twenty miles wide at the maximum. It centers about Long's Peak, one of the best known of the Rocky Mountain peaks, altitude 14,255 feet, at the foot of which is the home of Enos A. Mills. The Park includes practically all the area which Mr. Mills' books have made familiar to the public.

Besides Long's Peak, the Park includes a large number of other lofty peaks, including the following: Arapahoe Peak, 13,520 feet; Mt. Audubon, 13,173 feet; Hague's Peak, 13,554 feet; Fairchild Mountain, 13,509 feet; Mummy Mountain, 13,410 feet; etc. The Park includes about fifty miles of the Continental Divide between the Pacific and Atlantic waters. In the area lie a very large number of small glacial trough lakes and at least one small glacier, probably more. The well known towns of Estes Park and Grand Lake are on the borders of the Park, but not in its boundaries. The Park area proper is nearly all high mountain country, perhaps half of it being above timber line and no considerable part of the area below 8,000 feet.

The Park is one of the most accessible in America, as it is distant from Denver at the nearest point only about thirty-six miles as the crow flies, or about forty-five miles by road, and is still closer to the large towns of Boulder,

Longmonf and Loveland. The Park possesses great possibilities as an area for automobile touring, inasmuch as the rounded contour of the country make it possible to build roads which will carry the automobile traveler for many miles along high ridges which exceed 12,000 feet in altitude. From these points a view can be had of perhaps thirty mountain peaks exceeding 14,000 feet in altitude and several hundred miles of the great American plains which break away from the mountains within twenty miles of the Park.

The Park has a flora very typical of the high transitional, sub-Alpine and Alpine zones, and a large animal life, including mountain sheep, ptarmigan and other timber line residents.

NATIONAL PARK SERVICE. The Mazamas are greatly helping to conserve western scenery and have done well their part in extending the gospel of the outdoors. But much remains to be done for beautiful America. In this work does anything approach in importance that of establishing a National Park Service? A distinct governmental organization is needed to conserve our scenery—to give care and development to all the scenic reservations of the government. In the numerous parks and monuments of the government there is scenic wealth of enormous potential value. Thus far this scenery has suffered through neglect, or mismanagement, from the confusion which naturally arises through the joint management of three separate and unlike departments.

Scenery is a distinct resource and should be managed for its own sake and by an organization specially adapted to its needs. About the worst thing that could happen to our parks would be to give their management over to any governmental organization that has other work, especially commercial work to do. This was shown in the experience of Canada. For a time the Canadian Forest Service tried to manage the Canadian National Parks, but the Forest Service, being purely commercial, it naturally mismanaged the National Parks. Three years ago the Canadian Parks were given a governing bureau of their own. Under this they have already become famous. Hence our National Parks need a National Park Service. This service should be charged with the exclusive care of the parks, of keeping them in condition for people to use. The outdoor recreation facilities of the people from now on will be so important that the men in charge of parks should be completely in sympathy with the higher values of scenery and should not be hampered with other work.

Why not a joint committee of all the Mountain Clubs to champion the cause of parks and to urge the creation of a National Park Service?

ENOS A. MILLS,
Long's Peak, Estes Park, Colorado.

GUARDIAN BADGES WON BY PARTY OF SIX ON MOUNT ST. HELENS. For the purpose of qualifying for the Mazama "Guardian Badge," a party of six, under the leadership of Mr. E. C. Sammons, made the ascent of Mount St. Helens from the north side on Monday, August 3. The party consisted of Messrs. E. C. Sammons, Arthur S. Peterson, Edwin F. Peterson, Frank I. Jones, J. C. Sharp and R. W. Ayer. The trip was preliminary to the annual outing of the Mazamas at Mount Rainier. All of us were in fine physical fettle and thought ourselves capable of standing a strenuous "flying squadron" trip of one day, climb the next, out the next and into Camp Prouty the following. It afterwards proved that we were equal to our ambitions.

We chose the north side route, because of the convenience of Lange's homestead to the base of the peak, it being but three miles from timber line. Going by train to Castle Rock, we then took automobiles for a distance of 50 miles to the Lange place at Spirit Lake. The weather was extremely hot and the roads dusty and we got along smoothly until the Seven-Mile Hill or Green Mountain was reached, where one of the Fords bucked on the job. Constant coaxing enabled us to get to within eight miles of our destination before a complete breakdown of the ailing machine caused us to hike the rest of the way into camp. This we were eager to do, just to work up an appetite and to put our legs into shape for the next day's climb.

Lange's place was reached shortly before 5 oclock and next came a swim in the clear, cool waters of Spirit Lake, the beautiful. Boots were calked after

dinner and we were to bed early in preparation for the early rising in the morning. We were up ahead of the sun, in fact, a number of hours ahead of it, for when we arose and had a light breakfast we looked out to find that it had begun to rain, the first rain that had fallen in six weeks. To say that we were discouraged would be putting it lightly, indeed. However, we started for the mountain at 5 o'clock, taking the trail up "Dry Gulch." At 6:30 we were up to the snow line and by that time the rain was coming down harder than ever, and a most wicked-looking cloud cap hung over the summit. Having come that far to climb the mountain we were determined to make the ascent even if we were forced to cut steps all the way to the top.

We soon arrived at the "Lizard," and kept climbing upward, expecting to dash for the top the moment that the clouds lifted. About 9 o'clock the clouds were swept away to the northward and the sun came out most joyfully, changing our whole aspect on life. After gaining the top of the "Lizard" we took to the snow, which was hard and firm. Here we made exceedingly good time, our leader setting a pace of 60 steps to a rest. This brought us to the summit at noon, where we encountered a terrific south wind. It was most exhaustive work crossing that half mile of crater to the Mazama box on the south rim. A new registry book was placed in the box and the old one brought back with us. The wind was so strong we found it necessary to brace ourselves with our alpenstocks while our pictures were taken.

The descent was accomplised with ease, there being excellent coasting for several thousand feet. We lunched at the head of the "Lizard" at 2 o'clock, feasted on wild strawberries an hour later at timber line, reached Lang's at 5 o'clock, had another swim in the lake before six and at 6:30 sat down to the most delicious dinner (to us) ever set before hungry mountain climbers. Just think of it! fried chicken and strawberry shortcake—and in the mountains!

Mr. and Mrs. Lange received a number of additional guests that afternoon, many of whom, having heard of our successful climb, were eager to make the ascent. Finally a party was organized, with broomsticks and saplings for alpenstocks. Out of the party that started only one reached the summit.

Some persons seem to think that Mount St. Helens is a kind of molehill, up which they can run before breakfast for an appetizer—but not so. We found it exceedingly strenuous climbing—a harder proposition than either Mount Hood or Mount Adams, though by no means hazardous. More than half of the ascent is over pulverized volcanic ash, into which one sinks to one's ankles at every step; it is most trying work through that loose, dusty stuff.

By climbing St. Helens we qualified for the "Guardian Badge," given by the Mazamas for those who have climbed the Guardian Peaks of the Columbia River, namely, Mount Hood, Mount Adams and Mount St. Helens, the sextet of us having climbed the two first named peaks previously. Upon our arrival at Mazama camp on August 4th, presentation of the badges was made by Dr. F. B. Wynn, of Indianapolis. Our St. Helens climb placed our legs in shape for Mount Rainier and five of us (Jones returned to Portland from Castle Rock) stood on the summit of Mt. Rainier just one week later right to the hour.

ROY W. AYER.

OLYMPIC ELK TOTAL 7000. That 7000 elk are now natives of the Olympic Mountains, according to the latest estimates by forest rangers, was announced by R. L. Fromme, forest supervisor at Olympia, Wash. "Our object is to find out how many elk the range will support. We feel that to find the feeding capacity of the range and fix that as the size of the herd to be kept there, would really be the proper way to control the situation.

"With the co-operation of the miners in on the North Fork of the Skokomish River, we are planning to build a bridge across that stream about 15 miles above Hoodsport, on Hood's Canal. The bridge and the approach will cost about $600 to $700. The Forest Service plans to furnish the material and take charge of the construction."

FORESTERS ESTIMATE 95,756 MILLION FEET OF DOUGLAS FIR TIMBER IN 28 RESERVES.

There are 95,756 million board feet of Douglas fir in the 28 National forests in Alaska, Oregon and Washington, according to an estimate just completed by the local Forest Service. Western hemlock ranks second, the report shows, with yellow pine third.

The report follows:

"Of the total stand of 292,594 million board feet of timber in these 28 forests, Douglas fir ranks first, with 95,756 million feet, and is found in all but three of the National forests, the two in Alaska and the Fremont in South-Central Oregon. On account of the abundance of western hemlock timber on the two National forests in Alaska, this species ranks second with 72,851 million feet. Yellow pine holds third place with 30,363 million feet, and is found chiefly east of the summit of the Cascade Mountains in Oregon and Washington. These three species constitute 68 per cent of the total stand under the jurisdiction of the Forest Service in these three states.

"This estimate, which is only approximate and will be improved upon as opportunity offers, segregates the remaining amount of 32 per cent into twenty other species, some of which, like redwood, are found on only one or a few of the National forests in this region."

THE MOUNTAINEER LODGE.

Nestled high up among the peaks of the Cascades stands the Lodge, ready to welcome all who wish to enter and to enjoy its hospitable shelter. Our Lodge is the realization of a hope to have a mountain home which sprang up in the hearts of the Mountaineers while in the Olympics in the summer of 1913. Pledges were made for part of the necessary funds before the outing was over. Soon after returning to Seattle a committee to choose a site and to draw plans for the building was appointed.

A location (3200 feet elevation) was selected and ten acres leased near Rockdale, in the historic region of the old Snoqualmie Pass. The Pacific Highway now under construction is following the old trail through the pass. This place, only three hours' ride from Seattle, seemed very desirable, since it offered summer as well as winter sports. From this vantage point attractive climbs of Silver Peak, Denney Mountain, Guy Peak, Granite Mountain, Red Mountain, Snoqualmie Mountain, Chair Peak, and many others may be made.

The Lodge is built of hemlock logs and cedar shakes, with the following arrangement: In the front is the assembly room (20x40 ft.) with its great open fireplace; above this are quarters for the men; extending back from the main building is the apartment (15x42 ft.) for the women; in the corner formed by the two parts stands the lean-to kitchen (16x18 ft.).

A short distance from the Lodge, hidden from view by the trees, are two tiny lakes and a waterfall. Trails have been opened to them as well as to other places of interest. And thus the Mountaineer Lodge has been erected in the heart of the Cascades.

GERTRUDE INEZ STREATOR.

Book Reviews.

EDITED BY E. LOUISA ALMY.

"MOUNT RAINIER AND ITS GLACIERS."

The Department of the Interior has recently published a pamphlet entitled "Mount Rainier and Its Glaciers, by F. E. Matthes of the U. S. Geological Survey."

Mr. Matthes writes in a brief, clear and interesting manner, free of technicalities, and furnishes most valuable information as to Mount Rainier, its formation, original height, geological changes, volcanic activities, present height, area, flora, and the name, size, formation and individual characteristic of each of its glaciers, the work being beautifully illustrated.

This publication should be of lasting benefit to the public, fascinating reading for all mountain lovers and invaluable to the Mazamas who have visited Rainier.

R. L. GLISAN.

Mount Rainier and Its Glaciers. By J. E. MATTHES, U. S. Geological Survey.

"MOUNTAINEERING AND EXPLORATION IN THE SELKIRKS."

Every mountaineer will be interested in Mr. Palmer's fascinating account of his explorations in the Selkirk Range. He calls attention to the fact that the Canadian Rockies and the Selkirks are two distinct mountain chains, giving in a general way the boundaries of the latter range, which is about three hundred miles long and forty wide. Although not as majestically high as the Rockies, the Selkirks contain forty peaks with an altitude of over ten thousand feet, and as far as rugged grandeur and scenic beauty are concerned, they do not suffer in comparison with their eastern neighbors.

Mr. Palmer is the first to reach the summit of fifteen peaks, one, Mt. Sir Sandford, being 11,590 feet in height. This mountain was successfully ascended only after five attempts. Names that the author has given to over forty localities have been accepted by the Geographic Board of Canada. A new map that will be of especial interest to geographers is included in the book. Appendices contain much valuable technical knowledge not used in the main account. Over two hundred beautiful photographs help the reader to visualize this practically untraveled territory which has now been conquered in spite of many hardships.

MARY C. HENTHORNE.

Mountaineering and Exploration in the Selkirks: a record of pioneer work among the Canadian Alps, 1908-1912. By HOWARD PALMER. 1914. Putnam. $5.00.

"MOUNTAINS: THEIR ORIGIN, GROWTH AND DECAY."

The life study of geology has qualified Mr. Geikie to write with authority concerning the earth's mountain systems. He discusses different types of mountains, all of which he thinks may be included in two classes—Original or Tectonic, and Subsequent or Relict. He analyzes many peaks and ranges in demonstrating his theory. The fine pictures are a further aid in illustrating his points. A large number of these are from the Geological Survey of Scotland. Readers with but a slight knowledge of geology will be able to use this book intelligently because few technical terms are used. Those necessary are explained in a glossary. A table of mountain systems completes this comprehensive study of the orography of the world.

MARY C. HENTHORNE.

"Mountains: their origin, growth and decay." By JAMES GEIKIE. 1914. Van Nostrand. $4.00.

"My First Summer in the Sierra." These daily records of a season in the California mountains in 1869, recently published in book form, are just as alive now with the grace of the out-of-doors as when the naturalist made his notes by the evening camp-fire after his day's ramble in the canyons and on the peaks of the Sierras. Though necessarily busied at times with the cares incidental to helping drive over two thousand sheep to the headwaters of the Tuolumne and Merced rivers, Mr. Muir found time to observe many phases of plant and animal life. The monotony that drives many shepherds insane was unknown to him—mere living in such a wonderland made him bubble over continually with enthusiasm. His vocabulary is most ingeniously used to describe majestic forests of pine, fir and redwood, Alpine meadows brilliant with myriads of flowers, filmy cascades and rushing mountain torrents. July 15th contains an account of his daring peep at the Yosemite Falls "where it comes bravely forward in its narrow channel, singing the last of its mountain songs on its way to its fate—a few rods more over the shining granite, then down half a mile in snowy foam to another world."

Mr. Muir, with his keen powers of observation and his ability to make his readers feel his intense love for all nature, has done for the West what Thoreau did for the East. We feel his personality on every page. At times we laugh gently with him; then again we reverently feel with him the spell of those "days in whose light everything seems equally divine, opening a thousand windows to show us God. Nevermore, however weary, should one faint by the way who gains the blessings of a single mountain day; whatever his fate, long life, short life, stormy or calm, he is rich forever."

Mary C. Henthorne.

"My First Summer in the Sierras"; with illustrations from drawings by the author and from photographs by Herbert W. Gleason. By John Muir. 1911. Houghton. $2.50.

"Conquest of Mount McKinley." An interesting narrative of three attempts to climb Mount McKinley. The first two were unsuccessful and had to be abandoned. The third time the climbers reached within a few minutes' walk of the summit and were driven back by a severe storm. The descriptions of the wild country visited are very good and will appeal to all true mountaineers. The hardships of travel by boat and on land, packing over ice fields and narrow escapes in roaring glacial streams are all thrillingly portrayed. The author is also a photographer and his pictures add much to the realism of the book. They also disprove Dr. Cook's assertion that he reached the summit by convincing evidence that he reached no higher altitude than 5300 feet.

Beulah F. Miller.

"Conquest of Mount McKinley," the story of three expeditions to Mount McKinley, North America's highest and most inaccessible mountain; appendix by Herschel C. Parker; with 100 illustrations from original drawings by the author and from photographs and maps. Browne, Belmore. Putnam, 1913. $3.50.

Enos A. Mills: An Appreciation. Enos A. Mills, lecturer and author, a nature-educated man with an intense devotion to his Alma Mater, has given us three books which should be on every private book shelf where only best loved volumes go; books to remind one that there are other things to do in the mountains than to scale lofty peaks, and other interests in wild birds and animals than their extermination. These books are entitled, "Wild Life in the Rockies," "The Spell of the Rockies," and "In Beaver World," the last appearing in 1913.

Mr. Mills is no nature fakir. He is an earnest, sympathetic observer. Nearly thirty years ago, hardly more than a boy, he went prowling into the mountains of Colorado, established himself in a cabin on Long's Peak, and from this vantage ground began to make the acquaintance of his neighbors of the earth and air. Since then he has traveled hundreds of miles alone through the Rocky Mountains and without firearms. He has shadowed the trails of the beasts and the flowers and never has suffered from this shadowing. One has the feeling, after reading his books, that Mr. Mills could no more report untruthfully

on a beaver, a grizzly, a woodpecker, or an avalanche, than he could on an intimate friend. His treatment is serious, but he is aways light of touch, which makes his work delightful reading.

His intimate details of the building methods of the "Little Conservationists," as he styles the beavers, make us know that he was right there, hiding back of an old gray boulder and keeping oh! so still lest he frighten the little masons away from their home-building. His description of "Mountain Top Weather" with its "swift insistent winds" rings true to those acquainted with mountain tops. The "Insects of the Forest" are introduced to us quite as delightfully as are the grizzly bears. He tells us with charming quaintness of the antics of a neighboring grizzly who particularly enjoyed his host's rocking chair, and how on one occasion when he rocked too hard and it went over with him, Mr. Grizzly, peeved, sprang up and would have slapped his host in retaliation, but for the instant flight of Mr. Host, becoming separated, as it were, from a part of his trousers which remained in Mr. Grizzly's grasp.

The books are beautifully illustrated with original photographs by the author and are published by Houghton Mifflin Company.

ANNE SHANNON MONROE.

"THE ASCENT OF DENALI (MOUNT MCKINLEY)" A most interesting and modest account of the first complete ascent of Mt. Denali, 20,700 feet, by Archdeacon Hudson Stuck, for ten years a missionary in Alaska, and an amateur in mountain climbing. His plea that the mountain be called by "its immemorial native name 'Denali' the great one," rather than by the more modern appellation "McKinley," makes a strong appeal.

Due credit is given the few other expeditions, notably the Parker-Browne attempt which was so nearly successful, being turned back by a blizzard only three or four hundred feet from the summit.

The success of the Hudson Stuck expedition was due to careful preparation and a wise selection of what proved to be the only possible route. The expedition consisted of four men and two Indian boys, with fourteen dogs and two sledges. The four men made up the "climbing party," all equally valorous, but Mr. Harry P. Karstens of Fairbanks is particularly praised by the author.

The recital of the hardships endured recalls the accounts of polar expeditions. The unusual obstacles of this undertaking were the great isolation and altitude of the peak, and the difficulties of transporting supplies. The summer previous supplies had been carried to a spot fifty miles from the summit and the actual climb was made the following March.

For thousands of feet steps had to be cut, especially over the ridge shattered by an earthquake noted by the Parker-Browne party. Several camps were made in the ice, in one of which the climbers waited three weeks for clear weather in order to proceed. The last halt was made at an altitude of eighteen thousand feet, the highest camp ever made in North America.

Remarkably clear weather and the magnificent view was the well earned reward for the hardships suffered. "Only once perhaps in any lifetime is such vision granted."

LOTTE B. RILEY.

The Ascent of Denali (Mt. McKinley). By HUDSON STUCK. Scribner's Sons, New York. $1.75.

"EXCURSIONS" A collection of interesting talks on near-to-nature subjects such as "Walking," "Autumnal Tints," "Wild Apples," "Night and Moonlight" and other sometime commonplace topics elaborated in all their minute details and beautified by the language of a literary master. Emerson says Thoreau was a hermit and a stoic, preferring the crude and natural in all things to elegance and cultivation. Few of his contemporaries had the privilege of his confidences or even his friendship, but in his books we are afforded the pleasure of walking, talking and excursion-ing with this born naturalist who is on intimate terms with the leaves, the birds and the mountains.

In the walk to Wachusett we are made to realize the "place mountains occupy on the land and how they come into the general scheme of the universe.

"WALKING ESSAYS." Dedicated to

"Companions of the Boot,
Joint-heirs of Wind and Weather."

Though all these pleasant walks are laid in England, and walking in England and English landscapes are not to be compared with walking in Oregon or Oregon landscapes, the essays are delightful reading and one wishes the author might have had opportunity of experience in our bigger country.

Walkers are divided into interesting segregations of six-milers, twelve-milers, eighteen-milers and twenty-four-milers, with the temperament and habits of each.

There's an essay on "Walking Alone," and the author recommends this as a "sure cure" for the "Humps," or in our colloquialism, a "Grouch"; there's another on companions for walking—the man who saunters with a chatter, the man who strides and talks of everything under the sun, he who makes timely remarks as to view, campfire, weather and boots, and, best friend of all, he who paces his eighteenth mile with you and says never a word. Then there's one on the rhythm of the walk and the relation of music to walking, and among the best, "Walking Equipment"—not a long list of what shall be taken and what must be left behind, but simply good advice to take what experience has proved to be the best suited to each individual's needs and whims. E. L. A.

Walking Essays. By A. H. SIDGWICK. Published by Edward Arnold, London, 1912.

"THE CANADIAN ROCKIES; NEW AND OLD TRAILS." Mr. Coleman is Professor of Geology in the University of Toronto and the book is a delightful account of a series of mountain trips and explorations extending over a period of years, 1884-1908.

The first two trips were of an exploratory nature from the end of the Canadian Pacific R. R., which was at that time in process of construction. The main interest of the next three trips was the search for Mt. Brown and Mt. Hooker, guardians of the Athabasca Pass, and reputed for years to be the highest peaks of North America. After two unsuccessful attempts, they were discovered on the third trip, but to the disappointment of the explorers, it was found their size had been greatly exaggerated and they were in reality but insignificant peaks, less than ten thousand feet in height. Another trip in 1902 was made with Brazean Mountain as an objective point.

Mt. Brown and Mt. Hooker having been dethroned as monarchs of the Rockies, Mt. Robson now claimed the attention of scientists and mountain climbers. It had been seen from a distance but never actually visited by a white man. In 1907 an expediton was organized to climb and measure the giant. Dense forests through which trails had to be cut, made the arrival at the mountain so late that the party was obliged to give up the climb on account of weather conditions. They saw enough of the mountain, however, to know that its grandeur had not been exaggerated, and the next year they went in again, this time from Edmonton instead of Laggan. The weather was again unfavorable and though several attempts were made, no one reached the summit.

The closing chapters describe Robson the Majestic and make a very interesting comparison of the Canadian Rockies with the other mountains of the earth.

The author, a scientist of note, is a thorough lover of nature and brings to us so vividly the grandeur and beauty of the mountains, their virgin peaks and untried passes, that we long to behold them with our own eyes and try our strength against their hardships.

ELLA P. ROBERTS.

The Canadian Rockies; New and Old Trails. By A. P. COLEMAN. Published by T. F. Unwin, London, 1911.

SIERRA CLUB BULLETIN. Owing to the death on May 23rd of Mr. E. T. Parsons, who took such an active part in the business management and details of publication of the Sierra Club Bulletin, it was found impossible to issue the June number of the publication and make it conform to the usual high standard. In order to make up for it, the club has decided to make the January, 1915, issue the largest and finest ever published.

E. C. S.

MT. BAKER CARTOGRAM. One of the most interesting and valuable of recent publications dealing with the mountains of the Pacific Northwest is a little booklet of twenty pages by C. F. Easton, of Bellingham, Washington, entitled "Mt. Baker Cartogram, a Pictorial Brochure of the great Koma Kulshan (Kŏ-ō'-mah Kool-shăn') of the Lummis." The Engberg Pharmacy, of Bellingham, is the publisher. Probably no other person knows Mt. Baker as does Mr. Easton or is so well qualified to write concerning it. The illustrations are numerous and excellent and the descriptive matter is written in a breezy style that carries the reader along and makes him feel that he is really there, in the very presence of the mountain.

The booklet is especially valuable for its map, which is by far the most complete and accurate map of Mt. Baker and environs that has yet been published.

J. A. LEE.

"THE GUARDIANS OF THE COLUMBIA." "The Guardians of the Columbia" is in some respects an improvement on "The Mountain That Was God." The book is worked out on the same plan, and differs to the extent that the subject matter varies. Instead of a story built around one mountain, it embraces the great triangular region having Mt. Hood, Adams and St. Helens for the several angles. It is a beautiful theme told in pictures of the three great peaks, with their glaciers, streams and forests and the beauties of the Columbia River as well, a pictorial idyl of mountain, river, gorge and glacier.

The wealth of material has enabled Mr. Williams to produce a most excellent work, that has had a wide circulation and attracted multitudes to the scenic features of the river and its bordering mountains.

H. H. RIDDELL.

The Guardians of the Columbia. By JOHN H. WILLIAMS, Tacoma, Wash., author and publisher. Paper, 75c; cloth, $1.50; ooze leather, $2.50.

"THE MOUNTAIN THAT WAS GOD." John H. Williams in "The Mountain That Was God" evolved a publication as unique as it was original. It tells the story of "Tahoma" in a way to appeal to the most casual reader. It is a narrative, descriptive of the scenic wonders of Rainier National Park, in illlustration. The theme of the book is found in the scheme of its illustrations, supplemented by the text.

It well exhibits the attractions of the great mountain in a way that does not pall. The book is as fresh today as when first issued; it occupies a niche all its own.

The final chapter, delineating the wealth of flowers in the parks of the mountain slopes, is a feature that commands instant admiration. It aptly shows the most pleasing beauty of the Park.

H. H. RIDDELL.

The Mountain That Was God. JOHN H. WILLIAMS, Tacoma, Wash., author and publisher. Paper, 75c; cloth, $1.50; ooze leather, $2.50.

"THE CANOE AND THE SADDLE." The book gives a clear picture, first hand of early frontier conditions in the "Oregon Territory" as they appeared to the keen eyes of a young man imbued with a strong love of nature, a quick imagination and sense of humor. His appreciation of the majesty of our mountains makes a strong appeal to all mountain lovers.

Mr. Williams deserves great credit for the study and work he has put into this book. His notes are copious and valuable and the great number of illustrations are one of the most charming and interesting features. The letters and journals add immensely to the detail of Winthrop's picture of what was then the "Newest West." E. L. A.

The Canoe and the Saddle, or Klalam and Klickitat. By THEODORE WINTHROP, to wrich are added his Western letters and journals, edited with introductions by John H. Williams, Tacoma, Wash. Illustrated with 16 color plates and numerous other photographs and drawings.

"TRAILS THROUGH WESTERN WOODS." Dedicated to "The West that is passing; to the days that are no more; and to the brave, free life of the wilderness that lives only in the memory of those who mourn its loss."

The author paints a vivid picture of the life and customs of the Indians of the Northwest, particularly of the Selish tribe—incorrectly called the Flatheads—their history and traditions, and of the country originally inhabited by them, the Bitter Root Valley of Montana and what is now Glacier National Park. We see the Indian in his native haunts, as he was before the coming of the White Man. Mountains and forests, lakes and rivers are peopled with the creatures of his legends and fancies.

The book is written with a sympathetic understanding of the nature of the Red Man, and while we realize that the "survival of the fittest" is inevitable, we cannot but share the pervading feeling of regret and sadness over the tragedy with which he is face to face—racial death.

MARTHA O. GOLDAPP.

Trails Through Western Woods. By HELEN FITZJERALD SANDERS. Published by the Alice Harriman Co., New York and Seattle.

The Mazamas.

The mission of the Mazamas is important. It is to stimulate in people a love of the mountains and to awaken an interest in the study of them; to disseminate authoritative and scientific information concerning them; to aid and encourage the preservation of the forests and other features of mountain scenery in their natural beauty; and yearly to accomplish something which, besides reflecting credit upon the members, should benefit the world. In this latter regard we have in mind the furthering of the sciences of geography, geology, botany, topography, climatology, and zoology; and furthermore, by inculcating the habit of breathing fresh air, the improvement of the national health.

The society was organized on the summit of Mount Hood (11,225 feet) on July 19, 1894. On that day 193 persons, of which 38 were women, climbed to the summit; there were 105 charter members. The success of the expedition and its uniqueness were at once noticed in all parts of the mountaineering world.

The name "Mazama" is derived from the name of the mountain goat. Webster's Dictionary: "Mazama. A goat-like antelope (Haplocerus Montanus) which makes its home high up among the pinnacles and glaciers of the Cordilleran Ranges of Western America."

Any person of good character who has climbed to the summit of a snow peak on which there is at least one living glacier and the top of which cannot be reached by any other means than on foot is eligible for membership in the society; the annual dues are $3.00; no entrance fee. Following is a list of members of the Mazamas:

Acton, Harry W., 519 West 121st St., New York.
Acton, Mrs. H. Wagner, 519 West 121st St., New York.
Adams, Loring K., 732 Chamber of Commerce Bldg.
Adams, Claude W., 122½ Grand Ave.
Aitchison, Clyde B., Court House.
Akin, Dr. Otis F., 919 Corbett Bldg.
Allen, Arthur A., Portland Rowing Club.
Almy, E. Louisa, Route 2, Hillsdale, Ore.
Amos, Dr. Wm. F., 1016 Selling Bldg.
Anderson, Dr. Frederick, Orenco, Ore.
Anderson, LeRoy E., 51 Washington Bldg.
Anderson, Louis F., 364 Boyer Ave., Walla Walla.
Applegate, Elmer I., Klamath Falls, Ore.
Aronson, David A., 469 Everett St.
Atlas, Chas. E., 423 City Hall.
Ayer, Roy W., 7105 48th Ave. S. E.
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How to Get There.

(Note—No attempt is made to give the route to all the peaks in Oregon and Washington. The Mazamas feel sure, however, that information regarding routes to the better known ones will be appreciated by all who delight in climbing these monarchs of the Northwest.)

MOUNT HOOD.

The trip from Portland to Mount Hood is made by rail (Oregon-Washington Railway and Navigation Company from Union Station) or boat (The Dalles, Portland & Astoria Navigation Company from foot of Alder street) to Hood River, Ore. (66 miles), where automobiles are taken for Cloud Cap Inn. Fare to Hood River, by rail $1.90, by boat $1; auto fare, Hood River to the inn, $5; round trip, Portland to inn and return, by rail $12.50, by boat $12. Board and room at Cloud Cap Inn, $5 a day or $30 a week. Homer A. Rogers, Yale '03, has established a charming lodge near Parkdale, Ore., and six miles from timber line, and is also prepared to receive guests for the north side of Mount Hood. P. O. address, Parkdale, Ore., care of Mount Hood Lodge. Rates, $3 a day or $20 a week. To Government Camp, south side of Mount Hood (56 miles), the trip is made by electric cars to Boring, Ore., and thence by automobile. Cars of the Portland Railway, Light and Power Company leave First and Alder streets for Boring (fare 40 cents), where they connect with automobiles (fare to Government Camp $5). Board and room at Coalman's Government Camp, Hotel, $3 a day, or $18 a week. Guides for the ascent of Mount Hood, as well as for a variety of side trips, may be engaged at Cloud Cap Inn and Government Camp. For climbing parties the charge is $5 per member.

MOUNT ADAMS.

The trip to Mount Adams is by Spokane, Portland & Seattle ("North Bank") Railway from North Bank station, or by boat (as above) to White Salmon, Wash., connecting with automobile or stage for Guler or Glenwood. Fare to White Salmon by rail, $2.25; round trip, $3.25; fare by boat, $1. White Salmon to Guler, $3. Board and room at Chris Guler's Hotel at Guler P. O., near Trout Lake, $1.50 a day, or $9 a week. Similar rates to and at Glenwood. At either place guides and horses may be engaged for the mountain trails (15 miles to the snow line). Bargain in advance.

MOUNT ST. HELENS.

The south side of Mount St. Helens is reached by rail from Union Station, Portland, to Yacolt (fare $1.30) or Woodland ($1), where conveyances may be had for Peterson's ranch on Lewis River. To the north side the best route is by rail to Castle Rock (fare $1.90) and by vehicle thence to Lange, near Spirit Lake. No camp outfit is needed, as the Lange homestead, the best starting point for the ascent, is an ideal stopping place.

MOUNT RAINIER (TACOMA).

Mount Rainier (Tacoma) is reached from Tacoma, Washington, via the Tacoma Eastern Railway. The round trip fare from Tacoma to the mountain is $6. This includes railway transportation to Ashford and automobile stage ride from Ashford to Longmire Springs and return. Tickets are good for the season. The summer excursion rate from Port-

land probably would be in the neighborhood of $12. Excellent hotel accommodations are to be had at Longmire Springs. For those preferring camp life there are camps established in Rainier National Park near the snow line, at which accommodations are to be had at a reasonable price. Guides and horses are to be had at both Longmire Springs and the camps in Paradise Park. For persons visiting the north side of the mountain, which is more inaccessible, the round trip fare from Tacoma (on Northern Pacific) is $1.25. Guides and horses may be engaged from Henry Lost, Carbonado, Wash., for the 22-mile journey to the mountain—good trails.

GLACIER PEAK.

The trip to Glacier Peak, Washington, in the Lake Chelan district, is made by rail (Great Northern Railway) from Seattle to Wenatchee, thence by boat up the Columbia River to Chelan Falls, where a stage is taken for Lakeside. On Tuesdays and Saturdays Lake Chelan steamers leave Lakeside for Stehekin, at the head of the lake. Here, at Field's Hotel, horses, guides and a complete outfit may be obtained for the trip over the trail to Glacier Peak.

MOUNT SHASTA.

The ascent of Mount Shasta is made from Sisson, which is in Northern California on the main line of the Southern Pacific Railway. Open season is June 1st to September 30th. Rates at hotel, $3 per day and up. Competent guides can be secured here throughout the season. It is eight miles by trail to timber line.

CRATER LAKE.

Crater Lake, in Southern Oregon, is reached either through Klamath Falls or Medford via Southern Pacific Railway. From Klamath Falls the route is by launch to Pelican Bay Lodge, a distance of 33 miles, thence by auto stage 45 miles farther to the rim of the crater. The time required to make the trip is about nine hours. Through Medford one makes the trip direct to the lake by auto or by train via the Pacific & Eastern from Medford to Derby, a distance of 30 miles, thence by auto stage to the lake, 50 miles. Time required to make the trip, about nine hours. The season is from July 1st to September 30th. Rates at the lake are $3.25 per day, or $17.50 per week. Round trip from Klamath Falls, $20; round trip from Medford, $15.

MOUNT JEFFERSON.

The trip to Mount Jefferson is made by rail to Detroit, Oregon, either via the Southern Pacific Railway or the Oregon Electric to Albany and thence via the Corvallis & Eastern to Detroit. From Detroit the mountain is reached by trail up the main fork of the Santiam River to Parmelia Lake, where there is an excellent camping place near the base of the mountain.

THREE SISTERS.

The Three Sisters may be reached from the west via the Oregon Electric or the Southern Pacific Railway to Eugene, thence by auto or stage 60 miles to McKenzie Bridge. A wagon road leads from this point to Lake Valley, a distance of 18 miles. Then five or six miles by trail brings one to the base of the Middle Sister. These peaks are even more accessible from the east side of the range. Take the O.-W. R. & N. and the Oregon Trunk to Redmond, Oregon. From here a good wagon road leads one to within a few miles of the base of the peaks. Mount Washington can also be easily reached by this same route.

DIAMOND PEAK.

To reach Diamond Peak one goes from Eugene, Oregon, over the Oregon & Eastern Railway (better known as the Natron cut-off) to Oak Ridge, thence by wagon road up the middle fork of the Willamette River to within a few miles of the mountain.

MOUNT McLOUGHLIN.

The route to Mount McLoughlin (Mount Pitt) leads through either Medford or Ashland, in Southern Oregon. From either one of these points the trip may be made by wagon road to practically the base of the mountain.

MOUNT BAKER.

Mount Baker, Washington, is most accessible from Deming, on the Northern Pacific Railway. From Deming a wagon road leads seven or eight miles up the middle fork of the Nooksack River. From the end of the road a trail leads about 15 miles to Mazama Park, at the base of the southwest side of the mountain.

MOUNT SHUSKAN.

Mount Shuskan, lying northeast of Mount Baker, may be reached via Sedro-Woolley, on the Great Northern Railway, to Concrete, thence by trail up Baker River to the base of the peak.

EAGLE CAP.

The trip to Eagle Cap, in the Wallowa range, in Eastern Oregon, is made by rail to Enterprise, Oregon, and thence by trail up Hurricane Creek.

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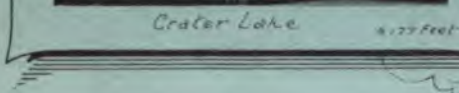

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Volume IV DECEMBER, 1915 Number 4

MAZAMA

A Record of Mountaineering
in the Pacific Northwest

NESIKA KLATAWA SAHALE

PUBLISHED BY THE MAZAMAS
PORTLAND, OREGON, U. S. A.

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MAZAMA

A Record of Mountaineering in the Pacific Northwest

EDITED BY E. C. SAMMONS

Volume IV | December, 1915 | No. 4

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Photo by Winter Photo Co., Portland.

Mount Shasta looking east from Mazama Camp. The route of ascent was up the long snow slope in the right center. Thumb Rock may be seen directly above the figure to the right of the tree in the center of the picture.

Mazama

Volume IV PORTLAND, DECEMBER, 1915 Number 4

Mount Shasta

By Jerry E. Bronaugh.

Although Mazamas is a club devoted to the "exploration of snow peaks and other mountains, *especially of the Pacific Northwest,*" and although Mt. Shasta is not, strictly speaking, in the Northwest, nevertheless, the Club has visited the mountain twice—once in 1904 when seventeen enthusiasts registered for the outing, and again in 1915 when seventy-six went forward to its conquest.

In writing a description of the mountain, when one has visited it on a Club outing, the temptation is very strong to dwell at length upon the delightful social side of the outing—of the camp fire entertainments—the songs, improvised and otherwise—the jokes, the stories told—but while such a rehearsal is interesting to those who took part in the outing, it is not satisfying to one who is seeking information about the mountain, and as one of the prime objects of the Club is to disseminate knowledge, the social features of the 1915 outing must be subordinated to an attempt to furnish some facts and data which will be helpful to those studying Mt. Shasta with a view to making its ascent. Moreover, the social side of this outing has been interestingly portrayed in a pamphlet, "Reminiscences of Mt. Shasta," prepared by Miss Agnes Lawson, and now a permanent volume in the library of our Club. In this volume are given the personnel of each party making the ascent, and of each tryout walk, also the songs sung, the jokes perpetrated and those breezy items found in the daily edition of the "Illegitimate News" and under the heading "Too Rank to Classify" and will be enjoyed by those who took part in the outing, for many years to come.

Mt. Shasta literature is extensive, but somewhat legendary rather than scientific; the glaciers of the mountain do not appear to have been seriously studied and the only one mentioned, except upon the maps, is Whitney Glacier, the névé of which is seen from the summit.

Shasta belongs to the Cascade group rather than to the Sierra; it lies between the two ranges, rising commandingly from a level of 4,000 feet to a height of 14,162 feet, with a base girth of 70 miles. It is some 400 miles north of Whitney of the Sierra and 75 miles

south of Mt. McLoughlin of the Cascades. It is practically midway between Portland and San Francisco on the Southern Pacific railroad, in Northern California, and is generally reached from Sisson, from which station to the usual starting point for making the ascent on the south side the distance is about 8 miles.

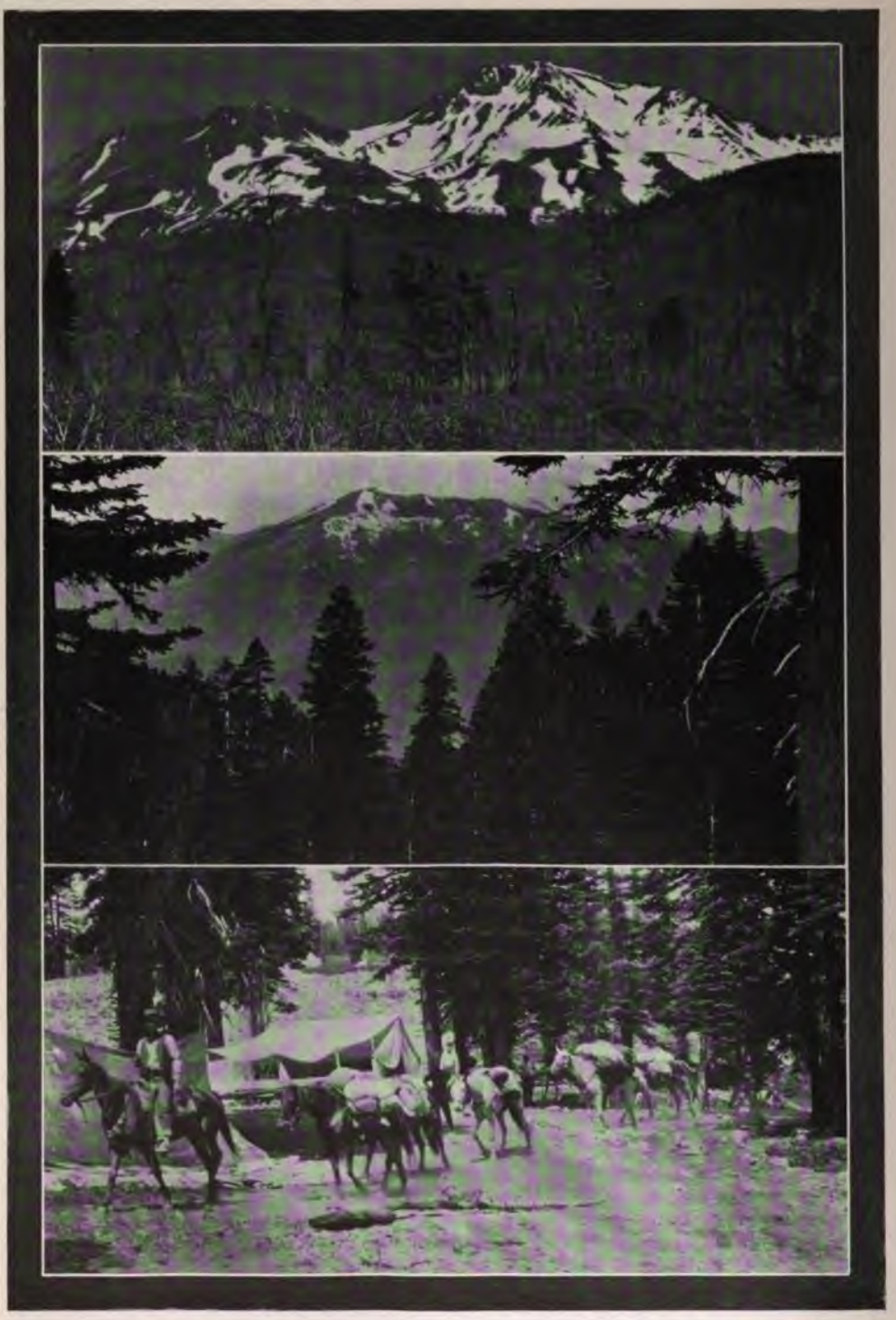
Shasta seems to grip everyone who comes within sight of its majestic and classic dome. Should it become necessary to jettison a portion of memory's cargo, what a task a Mazama would have in deciding which to cast overboard first! As Hood, Adams, Rainier, St. Helens came up from the hold, he would to each in its turn cry out: "Not that!" But especially does there seem some subtle charm about Mt. Shasta attaching to no other mountain, and it is this charm which has induced Mazamas, although the mountain lies far out of Mazamas' usual itinerary, to undertake its ascent twice, and I dare say but a few years hence, another and larger expedition will be made to its shrine.

On July 10th, 1915, at 6:00 o'clock P. M., through the courtesy of Mr. John M. Scott, General Passenger Agent, Mazamas got away from Portland in a special train of Pullman cars, and although the Club is a scientific body, quiet, earnest and thoughtful, yet it went tearing up the Willamette Valley at a terrific speed; it clambered up over the Siskiyous in luxury and by noon the following day, detrained at Sisson. From this point, the mountain seems to be within a stone's throw, and in the early afternoon of July 11th, the trail leading up to the permanent camp was soon dotted with climbers. The first few miles of this trial pass through a dense underbrush of chapparral which so incloses the trail that scarcely a breath of air may be had, and the hot sun of the early afternoon made the trip very trying on those unaccustomed to the strenuous life. Several prostrations were narrowly averted. A similar occurrence was experienced in the Mt. Hood outing of 1912 from Parkdale to the permanent camp. It would appear therefore advisable that a strenuous walk in the heat of the day at the beginning of an outing should be avoided.

The trail from Sisson to Horse Camp, the usual permanent camping spot for the ascent from the South, can be made in the cool of the day by inexperienced walkers, in three hours. The trail is a good one—the forests, first of *Pinus Lambertiana,* or sugar pine, and later of Abies *Magnifica Shastensis,* or true firs, reaching up to a level of 8,000 feet, without any underbrush whatever, are one of the remarkable features of the south slope of Shasta.

At Horse Camp, which is at the end of the trail and just at the timber line, is a spring, but Mr. Anderson, chairman of the

Mount Shasta (14,162 feet), from town of Weed, Cal., objective of 1915 outing of Mazamas. In size Shasta is second only to Mount Rainier among the glacier-hung mountains of the United States.



Photos by R. J. Davidson.

Upper—The mountain as seen from the Sisson-Shasta trail, two miles from the railroad. Note the denseness of the chapparal. Middle—Mount Eddy, on whose summit is an important forest lookout. Named after a pioneer of Northern California. Below—That grand sight of seeing one's bed arriving in camp before dark. The end of the journey.

outing committee, was unable to pitch camp there because the snow was still deep and was compelled to select a site about one mile south. This location is scenic, but there is no water so a snow bank was requisitioned to furnish water for the camp.

The first few days on a mountain, when one is getting oneself in proper form for the ascent, are always interesting—tryout trips are made leading well up on the sides of the mountain and during these trips one can leisurely study the flora, the geology and the topography of the country. There seem to be but few flowers on the south side of Shasta, due no doubt to the lack of moisture. The soil is volcanic ash, light and porous, and the water seeks the substratum of rock and flows underground, coming to the surface farther down, when the character of the soil changes, as at Shasta Springs.

Red Butte on the right, a huge mass of volcanic rock reaching to an elevation probably of 10,000 feet, Shastina, a cinder cone on the left and the snow fields immediately to the north, furnished fitting side trips.

The evening of July 15th seeming propitious to Chief Guide Ayer, announcement was duly made that the official climb would occur the following day. Accordingly, 3:00 o'clock the next morning found 37 well-seasoned climbers, about equally divided between men and women, lined up for the dash to the summit. Three divisions were formed, with experienced guides in charge of each division, and the comparative rapidity with which this line as a mass went forward, was amazing to the watchers with glasses left at the camp. It had been wisely determined beforehand to avoid the route taken by the Club in 1904, which leads up over the ridge to Thumb Rock. This route is extremely impracticable because of the sharp, jagged pinnacles which must be negotiated and because of the danger from dislodged rocks, while the route over the snow is comparatively free from danger, falling rocks alone requiring some watchfulness.

This route leads up practically midway between the two ridges. It is true that in places the way is steep and steps must be cut. Hummocky snow is often encountered, but such was not the case on this ascent. By 11:00 o'clock, the entire line had topped Red Bank and had made Thumb Rock. Here, one of the ladies decided that she would attempt no further elevation, and after tucking her way in a warm crevice of the rock, the line moved forward and at 12:00 the topmost pinnacle, Shasta Peak, was under the feet of 36 out of the 37 climbers who had started. This no doubt was the largest number ever on the summit at once. After depositing our names in the Mazama strong box, a sight-seeing period was enjoyed by every-

one who was not too tired to distinguish objects. To the north was Oregon; to the east, Nevada; to the west, the Pacific, and to the south, California—200 miles in either direction with all the varying landscapes included. Summit views are beyond the power to describe—one may relate the objects seen, but the sensations, the elation, the emotions, all defy description.

One of the surprises of Shasta is the fact that the summit is not a dome of snow, but consists of two jagged pinnacles, the higher of which is about 400 feet and is called Shasta Peak; the second, some 50 feet lower, has been named McLean Peak. Persons frequently are unable to determine which is the higher of these peaks, so members of a party making an unofficial ascent on July 14th, 1915, under the leadership of C. V. Luther, failed to register in the Mazama book because unable to determine which peak was the summit of the mountain.

At the foot of Shasta Peak are the hot sulphur springs of Shasta, famous because of the fact that John Muir when caught on the summit of the mountain in a storm, remained in the hot mud of the springs an entire night. These springs cover an area seventy yards square and emit a strong odor of sulphureted hydrogen.

The pleasures of the descent of Shasta strongly vie with those of its ascent. One can literally slide off this mountain, and we did—a sheer two miles without a check—not the slightest danger, because the first person who went down made a furrow out of which one could not fall if one tried.

By 3:30, Chef Weston's hospitable restaurant was an animated scene—36 climbers talking at once, each "shouldering his crutch to show how fields were won."

There are a few *Don'ts* about the ascent of Shasta—

Don't climb by the ridge route—the all-snow is much better;

Don't think it is not a "long, long way to top o'Shasta";

Don't be afraid to slide off the mountain;

Don't think Thumb Rock will suffice—it takes the whole hand;

Don't think that eternal summer nestles at the top of Shasta—take a sweater and warm gloves;

Don't think the climb is too severe for ladies. Mrs. Eddy, after whom Eddy Mountains lying just west of Sisson are named, is said to have climbed the mountain every 10 years until she was 80 years old.

Ornithologists speak of "a love of a bird"; why is a mountaineer not permitted to say "a love of a mountain"? Such is Shasta. True, there is no running water to speak of on the south side, therefore a different location should be sought for a permanent camp, but the

forests there are superb! Splendid groves of Abies *Magnifica Shastensis* with no underbrush whatever, extend to the 8,000-foot level.

True, there are no hanging valleys of gorgeous flowers, but the clear atmosphere takes on that dreamy, romantic lure which is lacking further north. True, there are no thundering avalanches, as on Rainier, nor any frowning crevasses; but one has only to look out to the south and see Lassen Peak and with the aid of one's imagination one can at any time picture one of those frequent volcanic eruptions so vividly portrayed by the California press agents. And then there are Shastina and Black Butte, and Panther Creek, and on the east the Modoc lava beds, and there is the wreck of a recent avalanche showing large trees snapped from their bases as though they were matches. Surely Shasta is worth while to the mountaineer.

I cannot close this article, however, without a brief reference to the personnel of the Mazamas' outing of 1915. Of course every one missed Mr. Riley, now President of the Club; Prouty and Glisan were touring other fields; Riddell, who did such splendid work as a guide on the 1914 Rainier outing, was elsewhere; Sholes, Lee and Gorman arrived just as the Club was breaking camp; Dr. Stone was with the Alpine Club of Canada; Dr. Wynn had made the ascent a few days before our arrival and had gone on. But what a splendid crowd of men and women we did have! There is no more royal mountaineer than President Campbell of the State University, developing, as he did, the engineering characteristics of a Goethals; no one who knows the everlasting hills better than Dr. Barck, of St. Louis; no better camp-fire listener than Miss Edna Barck of St. Louis; no better camp-fire entertainer than Yoran, of Eugene. Then there were Anderson and Ayer, Williams and Miss Dillinger, Luetters and MacNeil—each of them cool, clear-headed, unselfish mountaineers, competent to meet any emergency arising on a mountain—all Swiss guides in the making. Weichelt came up from Oakland to be with Newlin and make music. Doc. Weston and Jack Benefiel were real men behind real guns—commissary department.

After the close of the outing many of the Mazamas went on to the Exposition believing after doing Shasta they could "walk all over" the Exposition before breakfast, but the tired look which came over those indefatigables early in the afternoon indicated that walking in the bracing atmosphere of one of the highest mountains in the United States was different from tramping over hard-surfaced streets. A happy reunion and dinner at the Nuremberg on the zone with Anne Shannon Monroe as guest—and the 1915 Mazama outing became history.

To Mount Shasta

Thou art a mighty mass, but not insensate thing!
A mood for every day, yea, every hour, doth spring
From thy hot heart. And I, your bold intrepid thrall,
To read your meaning clear, will strive till death ends all.

C. H. SHOLES

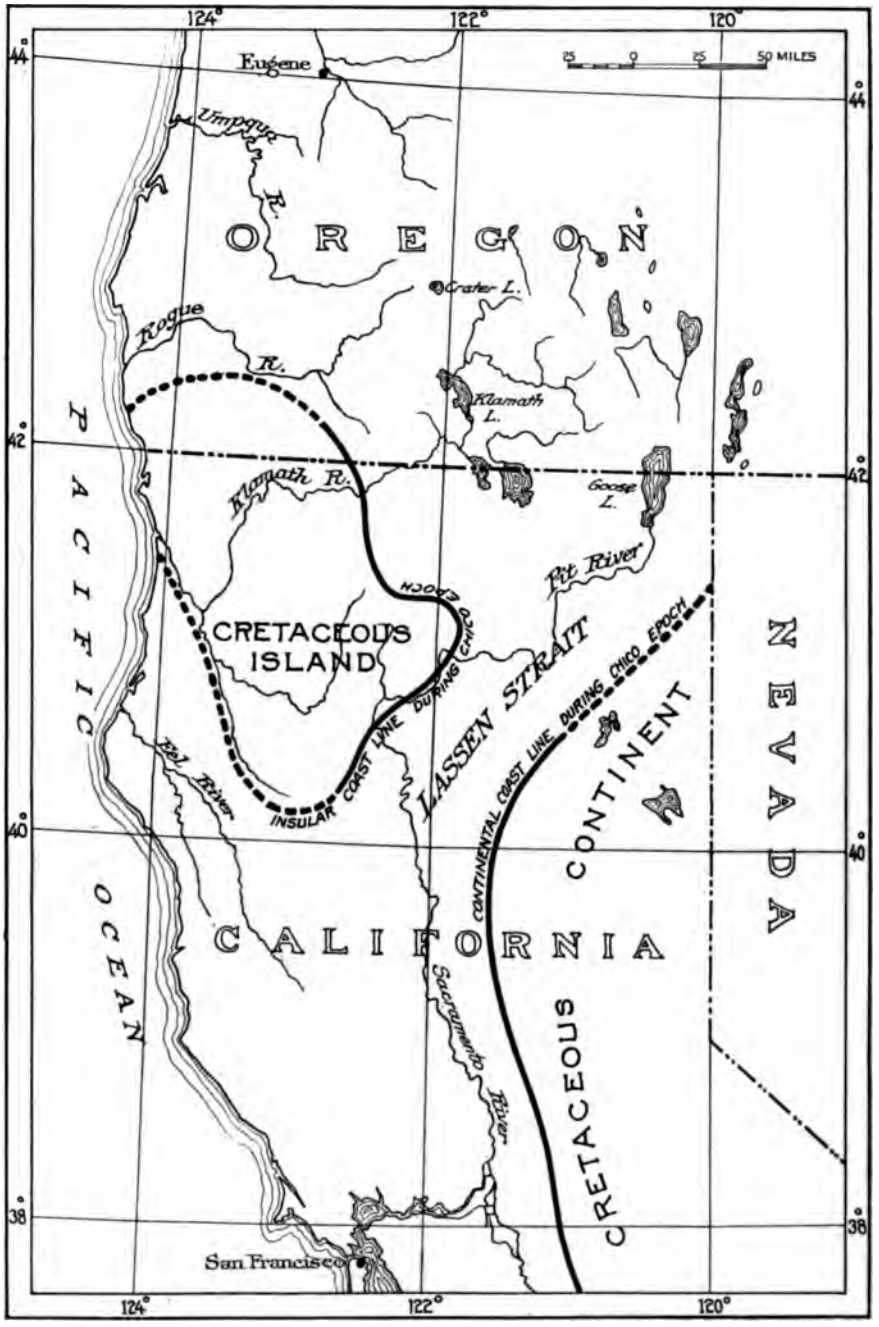


Fig. 1. The geography of the California and Oregon boundary region during a portion of the Cretaceous period.

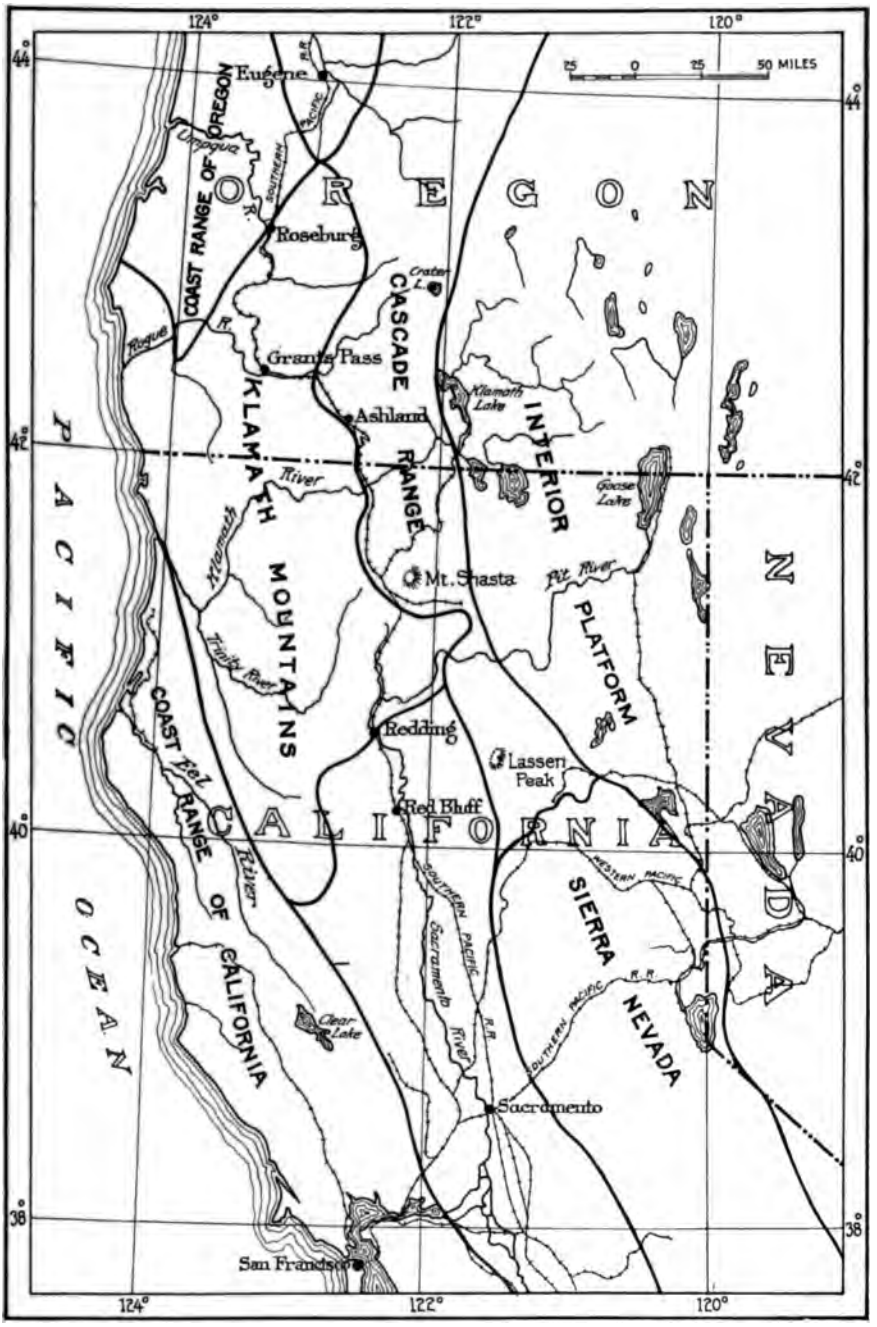


Fig. 2. Map of Southern Oregon and Northern California showing the boundaries between the Sierra Nevada, Cascade, Coast Ranges and the Klamath Mountains.

Mount Shasta

Some of its Geologic Aspects*

By J. S. Diller, *U. S. Geological Survey.*

Relation to Surroundings.—The mountains in the borderland of California and Oregon have ever been a puzzle to the traveler and to the sojourner as well. Journeying from San Francisco northward through the Sacramento Valley there is no difficulty in recognizing the Sierra Nevada on the east and the Coast Range on the west. Approaching Portland in the Willamette Valley there is the same ease of distinction, the Coast Range on the west and the Cascade Range on the east. But between the Sacramento and the Willamette from the time that the train plunges into the mountains at Redding until it emerges at Eugene, the traveler is in doubt as to the general name of the highlands about him.

The solution of this question is to be found in the geological development of the country.

The lay of the land and sea in California and Oregon geologic ages ago is represented by figure 1.[1] Lassen Strait, an arm of the sea, separated from what was then the Continental border, an island which gave birth to the Klamath Mountains[2] in line with the Sierra Nevada Range. The Coast Ranges of California and Oregon were developed later out of newer sedimentary rocks and finally came the Cascade Range which has been built up mainly of lavas by volcanic action such as piled up Lassen Peak and Mount Shasta and the long line of volcanoes across Oregon to Rainier in Washington.[3] If the geology be omitted and the railroad added with the boundaries of the mountains as already indicated[4] the map would appear as in figure 2—with Mount Shasta near the center as the general view point for the whole.

Its Impressiveness and Early Ascents.—Mount Shasta is one of the great peaks of the world and for many years to come will attract the attention of scientific men, especially geologists, as a magnificent example of an isolated mountain built by the volcanic process. Fortunately for all it is easily accessible from a main line of travel.

From the west and north Mount Shasta is double, as seen in figure 3. The higher portion, Shasta proper, on the left is about 2,000

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*Published with the permission of the Director of the U. S. Geological Survey.

1 Eighth Annual Report U. S. Geol. Survey (1886-7), p. 412.

2 The Klamath Mountains are noted more fully in Mazama, Vol. 1, pp. 104-6, 1896.

3 A general view of the geology of these ranges is shown in Fourteenth Ann. Rept. U. S. Geol. Survey, pl. XLV, p. 414 (1895), also in plate 1, U. S. Geol. Survey, Bull. 196, 1902, and in fig. 2, p. 11, U. S. Geol. Survey Bull. 546, p. 11, fig. 2, 1914.

4 Fourteenth Ann. Rept. U. S. Geol. Survey, pl. XL, p. 404.

feet higher than Shastina on the right. From the south and southeast Shasta appears to be a single cone as in figures 4 and 5.

The mighty summit of Shasta is made up of rocks which were once white hot and molten. The material came up from the earth's internal furnaces and poured out upon the surface as lava flows, building up the mountain so high that it reaches up into the region of eternal snow. Long ere the advent of man this forbidding snow-covered crest may have been visited by swarms of butterflies in their summer flights or the graceful hawk in his roaming search for food, a trip not without some promise on the mountain top for even tiny mice are known to have reached the very top of Mount Shasta.[5]

Whitney and King's Work.—The pioneers of the Pacific Railroad surveys were greatly interested in Mount Shasta but the first scientific party to ascend the mountain appears to have been the party of J. D. Whitney and his associates of the Geological Survey of California in September, 1862, who first measured its height[6] by direct barometric comparison and called attention to its peculiar lavas. Clarence King's party of the 40th Parallel Survey ascended the mountain in the autumn of 1870 and collected its rocks, which were described later by Hague and Iddings.[7]

Investigations by the U. S. Geological Survey.—In 1883 Capt. C. E. Dutton of the U. S. Geological Survey undertook the study of the Cascade Range, and the writer assisted by Ensign, now Captain, E. E. Hayden made a reconnaissance of the range, beginning with Lassen Peak and Mount Shasta in California. We spent two days on the slopes of the latter visiting Shastina and the Whitney glacier. Crossing through the range along the Klamath River we visited Crater Lake, tied a couple of logs together for a raft and paddled over to Wizard Island. Mount Thielsen, Diamond Peak, the Three Sisters and Mount Hood were scaled in succession from the dry east side of the range. The return along the west side of the range to California in October had all the rain necessary to make up for the lack of it during the summer.

The following summer (1884) Eugene Ricksecker of the U. S Geological Survey made a special topographic contour map of the mountain and the writer studied its geology for a model to be sent to the New Orleans Exposition. The model was later exhibited at

5 In 1884 the writer found a gray mouse about 1½ inches in length, with long hind legs and tail, flesh thoroughly dried and body completely mummified, sitting erect in the record box on the summit of Mount Shasta. Hawks and butterflies were seen on several occasions, and once a gray squirrel was seen on the rocks at a height of over 10,000 feet.

6 Whitney determined the height to be 14,440 feet (Geol. Survey of California, vol. 1, p. 333). Later determinations by the U. S. Geol. Survey make it 14,380.

7 Am. Jour. Sci., 3d ser., vol. 27, p. 223, Sept. 1883.

Fig. 3. The north slope of Mount Shasta as seen from near the railroad at an elevation of about 4,200 feet. In the distance are Shasta on the left, Shastina on the right, and the Whitney glacier with its prominent terminal moraines between them.

slope of Mount Shasta looking up from Gray Butte (elevation 8,206 feet). The forest fades into the treeless region
appears to be a single cone. The McCloud glacier appears near the summit. The sky line on the right is the
mules carrying his instruments to the summit in 1883. The valley near the sky line on the left

the National Museum in Washington, but the geology (figure 6) is here published in map form for the first time. As the areal work was done before the topographic map was completed the outlines are not especially close approximations.

Mode of Formation and Age.—Mount Shasta is a great accumulation of volcanic material about the vent from which it issued. The larger portion of the mass is made up of coulees or streams of molten lava that welled up in the throat of Mount Shasta to the surface and overflowed from the crater on top or burst through the crater wall and reached the surface by a fissure in the mountain side. The volcanic activity of Mount Shasta began in early Tertiary time (Eocene) and continued by alternative active and quiet periods for many millions of years upbuilding the mountains. Most of the activity was effusive, pouring out flows of lava one over the other, but there was also much material ejected in the form of volcanic ashes and pumice by explosive action which produced in many places layers of fragmental material between the sheets of lava.

Its Foundation—the "Bed-rock series."—Mount Shasta stands on a foundation of older rocks, the "Bed-rock series" from which the auriferous gravels were derived. These rocks make up the Sierra Nevada and Klamath Mountains which appear upon the western and southern border of the map, as well as a small insular mass that sticks up through the lava at the Hay Stacks. These older rocks include not only a great variety of igneous masses but also many sediments, sandstones, slates and limestones, which in the region south of Mount Shasta between Kennett and the Great Bend of Pit River are especially remarkable for the fossils they contain. The canyon of the Sacramento River from Shasta Springs to Redding is cut in these old rocks and the canyon is followed for 50 miles by a stream of lava from the south slope of Mount Shasta. Many of the fertile terraces in the canyon are on this lava stream, and beneath it may be seen near Delta and elsewhere the auriferous gravel of the old channel of the Sacramento River when it was about 70 feet above the present level of the stream.

Varieties of Lava.—To many observers the lavas of Mount Shasta do not differ greatly among themselves and yet when studied in detail microscopically petrographers divide them into three groups, hornblende andesite, hypersthene andesite and basalt. Andesites were so named because of their occurrence in the Andes Mountains of South America. The hornblende andesites of Mount Shasta are generally of light gray color sprinkled with prominent black crystals of hornblende. Hypersthene andesites are generally somewhat darker colored

with a sprinkling of hypersthene crystals, while the basalts are the darkest colored and often full of steam holes like bread.

Shape and Size.—The fluency of the lava and the quantity erupted at each period of activity were the chief factors in determining the shape and size of Mount Shasta. The lavas were, in general, stiff and did not flow readily. The andesites were mostly viscous, forming thick tabular flows with steep edges and abrupt ends that appear as bluffs on the mountain slopes. There are fine examples just east of the Hotlum Glacier as well as about the lava peak and elsewhere on the north slope where the railroad from Delaney to Weed swings around the mountain under the terminal bluffs of the andesitic flows. Among the steepest and boldest slopes of the region are those of Cone Mountain, the conspicuous feature by the railroad at the western base of Mount Shasta. It is composed wholly of a typical hornblende andesite, like that of Pre de Dome in France. Hypersthene andesite is by far the most abundant lava of Mount Shasta. Its flows were more fluent, spread more easily to gentler slopes and coalesced with the broad plains about the mountain's base.

Lava Caves.—A notable feature connected with the fluidity of Shasta lavas is Pluto's caves, of which there are several in the country southwest of Sheep Rock. As the lava flowed over that region a crust was formed over the lava and the molten rock beneath the crust continued to flow as the stream advanced. Sometimes when the supply of molten material ceased it flowed out of the upper portion and left deserted tunnels such as Pluto's caves, more commonly known as lava caves.

Surface Features.—Basalt, which is one of the most common and widely known of all lavas, forms but a small part of Mount Shasta. The larger masses are about Black Crater and Ask Creek Butte that lie to the eastward beyond the slopes of Shasta proper. The only masses of basalt which properly belong to Mount Shasta are connected with cinder cones, of which there are three upon the northern and three upon the southern slope of the mountain. The map indicates their position and the small flows of basalt with which they are associated. Some of the basalt cinder cones have well defined craters from which the material was ejected. The cinder cone by the west edge of Lava Park is a good example, but others, especially the one northeast of Wagon Camp between the forks of Panther Creek, is dome shaped without a trace of depression (crater) in its summit. At this point streams of basalt have descended both sides of the divide.

Fig. 5. Southern slope of Mount Shasta looking down from Gray Butte (elevation 8,206 feet). The dome shaped basalt cinder cone is the second one from the point of view. The others are of andesite, excepting Bear Butte, which is basalt at the end of the line fifth from the point of view. Beyond Bear Butte and the plains about its base are the mountains of the "Bed-rock series."

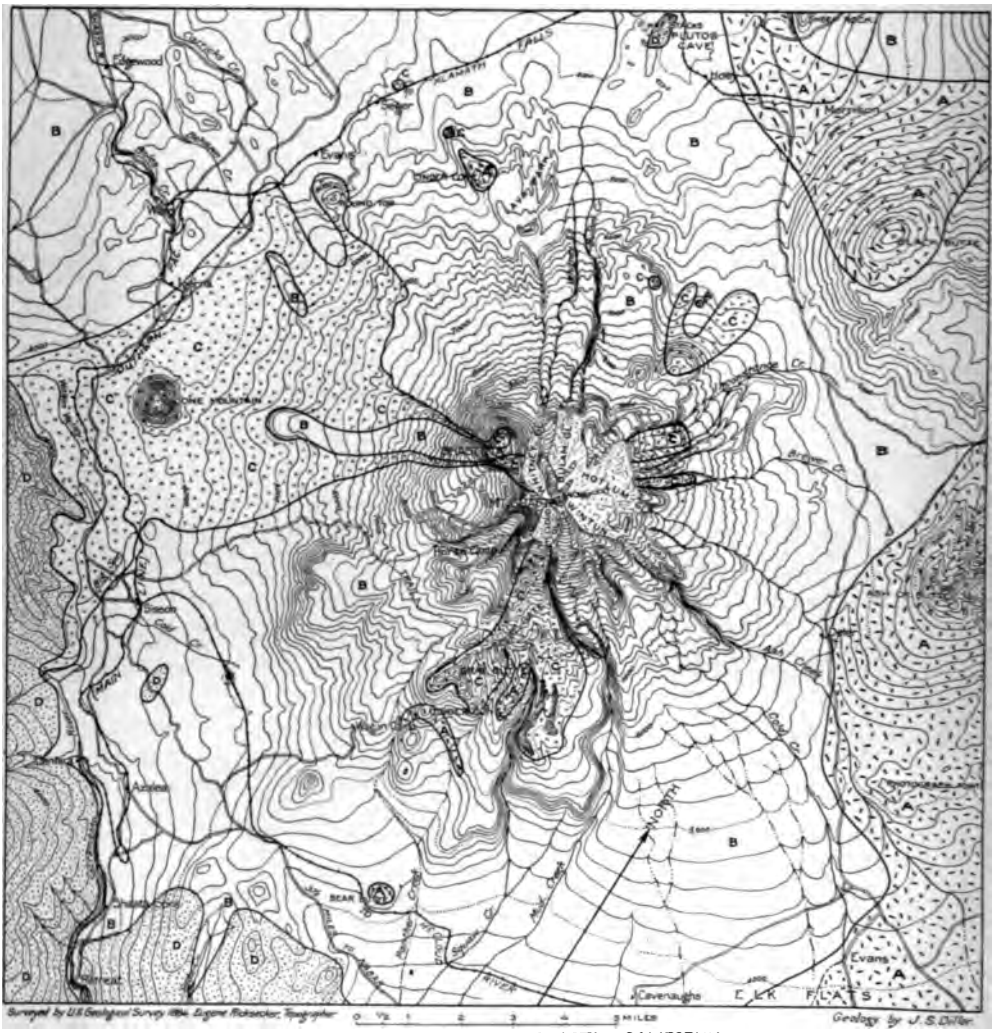


Fig 6 GEOLOGIC MAP OF MOUNT SHASTA, CALIFORNIA

Fig. 6. The topography of Mount Shasta is published by the Geological Survey on the scale of 1:62500 as "Shasta Special Map." With additions, but on a smaller scale, the American Book Co., in New York, published it in 1895 as No. 8, p. 246, of a series of National Geographic Monographs under the title, Mount Shasta, a Typical Volcano.

Latest Flows.—In general the eruptions of basalt were the latest, but much of the dark hypersthene andesite closely related to basalt, especially that of the Lava Park on the north slope and near the Sissons trail, is of late extrusion that still retains its remarkably rough surface. Perhaps the mosted noted of Shasta's late flows is the one which climbers of Shasta remember as "Red Bluff," on the trail up the mountain at an elevation of about 13,500 feet. It is wholly fragmental and underlies the cinder covered slope so tiresome to scale. It has the appearance of recent eruption, and may be the result of the last real volcanic activity of Mount Shasta.

Fumaroles.—At any rate this is the summit region where several vents occur from which steam and sulphurous gases are constantly escaping and around which is a considerable deposit of sulphur, some of it being handsomely crystallized. This vent is in fact a small fumarole and the last remains of the once mighty volcanic agencies which have piled up this great mountain.

Glaciers.—That the masses of ice and snow on the upper slopes of Mount Shasta have glacial motion is shown by their crevasses and the accumulation of moraines on their borders. They are limited to the northern and eastern sides of the mountain, a distribution determined by the direction of the prevailing storm winds from the southwest. Above 10,000 feet they cover most of the rocks. Downward they rarely reach as low as 9,000 feet. The Whitney Glacier with its crevasses (figure 7) reaches from the summit of Mount Shasta down the slope by Shastina, two and one-fifth miles, to a prominent terminal moraine that is in plain view from the Klamath branch of the Southern Pacific railroad along the northern part of the mountain. To the east of Whitney Glacier is Balum Glacier, with a large pile of debris at its lower end; next comes the broad Hotlum Glacier and then the Wintum. McCloud Glacier, which is the smallest of the group, is sometimes called Mud Creek or Konwakiton Glacier because of the stream to which it gave rise.[8]

During the glacial epoch when the northern part of this country was buried in ice, the glaciers of Mount Shasta were larger than they are now. One of them from the great gorge of Shastina appears to have spread its moraine westward beyond Cone Mountain where it is traversed by the railroad. Moraine ridges appear on the southern slope of the mountain southeast of the Gate and mark the most distinctly glaciated region.

8 These glaciers for the most part were named by Major Powell in terms of the Wintum language.

Heat and cold have vied with each other in giving the final touch of form and mass to Mount Shasta and their records are intermingled. Although the later lava flows are not glaciated, that is, they are younger than the glacial epoch, the activity of the little glaciers now encircling the summit is still a dominant and ennobling feature of the great mountain.

U. S. Geological Survey, Washington, D. C., October 19, 191

The Alpine Fir

"Rugged spire of emerald,
I love thy lofty home.
Thy hands with upturned fingers
E'er beckon me to come.
Thy scars of winter tempest
On trunk and shattered limb
Proclaim the brave companion
Of mountain's cragged rim.
May I, like thee, in struggles
Breathe free the higher air:
May I be true and steadfast,
This to God in prayer."

—Edmond S. Mean

Fig. 7. Northwest slope of Shasta seen from slope of Shastina at an elevation of about 12,000 feet. The crevasses of the Whitney glacier are in view on the left and beyond is the main summit. Whitney glacier takes most of the snow from the summit field of Shasta.

Photos by Winter Photo Co., Portland.

The last outpost of timber on the west side of Mount Shasta. The White Bark Pine is indeed a hardy tree. The insert at the lower left shows a cluster of anemones near the snow line. Shasta is not as prolific in her flora as are the Cascade peaks to the north.

Physical Geography of the Mount Shasta Region

By WM. P. HARDESTY.

The Mount Shasta region, including the westward past Sisson to the Sacramento River, is classed by the U. S. Weather Bureau as being in Northeastern California. The climate is somewhat like that of the mountainous sections of arid regions. There is a heavy snowfall (with some rain in the lower sections) during the Winter, with a fair amount of precipitation overlapping both the Fall and Spring. The four months of June, July, August and September are typically dry.

The entire Shasta region is of volcanic origin, the well-known lava rock being found everywhere. The volcanic cones and craters tell plainly of the days when molten rock and fiery ashes were belched forth, and the lingering internal life of some of the peaks is evidenced by the gases, steam, smoke and even hot mud, that have recently issued from Lassen Peak.

On the westerly slope of Mt. Shasta, in the more immediate vicinity of the Mazamas' outing, the results of ancient volcanic activity combined with modern climatic conditions evidently conspired to afford the Mazamas only rather unattractive surrounding for their stay.

It may be explained that the surface of the country from the base of the mountain westward to the railroad consists very largely of ejected fragmentary material (lava, ashes, etc.) instead of ejected fluid material (molten rock now solidified). Though both classes of materials are poorly adapted to allow surface flow of water, the lava ash particularly is so porous that the melted snows at once penetrate it. Thus it happens that on the entire western slope of Shasta practically no streams of water at all are to be found. Even at the much-heralded Horse Camp the only stream of size sufficient at which to slack one's thirst was seen to run not more than a very short distance, when it disappeared in the porous formation. Only in Panther Creek, just west of Gray Butte, were the Mazama explorers able to find a simon-pure living stream large enough to take a foot-bath in. It should be stated that a large amount of water was formed on every warm day from the fast-melting snows, but it was only where a natural drainage channel was found with a bottom consisting mostly of *rock* that water could be found. Such channels are rare on the west slope of Shasta, but on the easterly side respectable streams of water are found.

The absence of living streams and of flowers and heather at the lesser altitudes, and the scantiness of glacier life on Mt. Shasta itself, combined to cause a dearth of the attractiveness in "side trips" more customarily afforded the Mazamas on their annual outings. The "trip in" to Camp from Sisson hardly helped to relieve the situation. The first half, out from Sisson, was through a burnt-over area, now covered with brush. As the Mazama pilgrims plodded up the trail, at times ankle deep in the lava dust, with the blazing sun at their backs, the fervidly eloquent description of the beauties and attractiveness of the Shasta forests given in the preliminary prospectus was recalled by more than one. The timber that was afterwards penetrated has some attractive features, but it cannot compare with that found on the Pacific slopes further north, in Oregon and Washington.

Returning to the physiographic and hydrographic features of the Shasta region, it may be noted that the great quantities of water that disappear in the soil and rocks are accounted for in the immense springs that feed the rivers lower down. The wonderful flow of pure water from the hillside at Shasta Spring, aside from the springs of mineral water, is evidence of this. The Pit River, the largest tributary of the Sacramento, is fed by branch streams, nearly all of which have their origin in huge springs, many of which discharge several hundred second feet. The most important affluent of the Pit is the McCloud River, fed principally and directly by the melting snows on the southeasterly slopes of Shasta.

To sum up, it may be stated that the Mazamas, on their Shasta trip, had an environment of physiographic and botanical conditions quite different from what they had experienced in the Pacific Northwest, and it is only fair to say they will be more than satisfied to return to the latter.

Photo by Winter Photo Co., Portland.

Mount Shasta as seen from lava plain 2½ miles below snow line and one mile from Mazama Camp. View looking east. The high barren ridge on the left is Shastina, a secondary crater. Note the dense firs which grow at this altitude.

Photos by Winter Photo Co., Portland.

The top of Mount Shasta. Upper—A close view of the crater wall, now rapidly disintegrating. Middle—The vast snowy summit plateau, Mazamas at the left. Below—Shasta is a ponderous pile; one of the lava ridges radiating from the summit.

Some Facts About Mount Shasta

By F. H. MacNeil.

Of all the snow summits of the Pacific Coast, Mt. Shasta occurs to the writer and to others whom he has consulted, as the most interesting.

This is not so from a climber's standpoint, for to mountaineers, barring the altitude, Shasta is considered "tame." From the side most commonly climbed, not a problem of scientific mountaineering presents itself, with the exception possibly of cutting steps in the chute below Thumb Rock when the morning is cold and the snow is icy.

Shasta is climbable from almost any side. If from Sisson and the southwest, it is a snow passage to near the summit, and then a distressing scramble over lava debris through which snow water is passing, and which slips and crumbles with every footfall. If from McCloud, the climb is mostly over rock of not very steep pitch. From the northeast, conditions are nearly the same. For variety, one may ascend from the northwest, between Shasta and Shastina over a splendid glacier with many interesting possibilities in the numerous crevasses.

But historically at least, Shasta is rich. Its scientific history, as told by what remains of a once magnificent cone, is terrifying. The Indian lore is as varied and as full as that of the red men of the Columbia River region.

On these things, however, the writer cannot touch. Shasta's very summit itself seems to present material enough to write a volume.

As one swings over the last snow slope, approaching the series of rocky pinnacles and piles marking the very top, one becomes aware of the near presence of a reeking, sputtering spring, last remnant of the old volcanic fires. The spring is on the talus incline leading to the pinnacle sometimes called Muir Rock, on which the record box remains.

Huge boulders surround it, and the east side of the hidden spring is bounded by a perpendicular rock, possibly four feet high. The boiling water beneath has heated it until it is like a stove. Several of the numerous climbs made by the Mazamas in the summer of 1915 were on unusually cold days, when a freezing wind swept the summit plateau. On these occasions, the shelter and warmth of this rock was a perfectly indescribable comfort. Empty food containers of every variety litter the place and the smooth rocks of the spring are covered with signatures. These are badly weather worn. One, bearing an August, 1909 date, was written on a sheltered ledge and is faintly

legible. It was signed by "H. Benson," Reno, Nev., and the poetic inscription above testifies to the writer's complete comfort "beside this hellish furnace," and his overpowering reluctance to climb the last hundred feet or so to the record box above.

Looking back a few yards across a shallow snow gully from the spring, one sees the ruins of the cairns, built principally by the government employes, particularly men of the United States Geological Survey, as shelter during the nights they spent on top. Five or six of these solidly built rock houses, which, when in use, were roofed with canvas, are still sufficiently intact to be noticeable, even showing the holes that had been left for doors. One or two of these structures were built 40 years ago by men who were engaged in erecting the steel monument on the pinnacle.

Any one of the five or six rocky pinnacles on the summit plateau, all surrounded by the eroding lava talus, might be taken as the highest point. For those who have climbed Shasta without guides, this fact has many times been the cause of useless labor, in that the mountaineers ascended the wrong pinnacle, only to descend and climb the others until the one sheltering the record box was reached. This occurred to the first Mazama party climbing last July. Muir Rock, however, is easily found when one knows that the sulphur spring lies at its south base.

For years in the earlier days, this pinnacle was not considered the actual summit, and the record box reposed on one of these other miniature mountains. For years too, the pinnacle was considered almost unscalable, for three of its walls are precipitous.

The copper monument, now down, was placed on top of Mt. Shasta, near the place where the record box is now located, by L. M. Sisson, for whom the town of Sisson on the southwest is named. It was erected in 1875.

Just 30 years later, in 1905, the monument collapsed during a terrific storm. The forest observer on Mt. Eddy, across the valley to the west 15 or 20 miles, is said to have been looking at Shasta with glasses when he saw the monument disappear. The monument was cylindrical in form, standing nine feet high, its metal structure imbedded in the rock.

The various parts were packed to the top by Indians from McCloud. Local history has it that the braves, after starting out with their loads, shifted them to the backs of their squaws, and made the climb in comfort as they watched the women struggle under the burdens.

For some years after its downfall, parts of this monument still remained on top of the pinnacle, and were covered with the signatures of climbers. But even these have disappeared, probably over the tremendous precipice to the north. One sheet of the monument metal still remains. Two feet long and half an inch thick, it is used to hold down the lid of the record box.

The heavy copper record box on top of the pinnacle, the Mazamas thought, was the one they had placed there on the outing twelve years ago. This box, it now seems, was removed, and replaced with one by members of the Sierra Club. The present registry book was also placed on Shasta's summit by the Sierra Club.

The original Mt. Shasta register was taken to the top by Mr. Sisson nearly 50 years ago. Some of Mrs. Sisson's relatives took it down in 1900. It was put in shape and presented to the University of California, and is now probably in the museum at Berkeley.

There is no doubt but that many persons have stayed on top of Shasta overnight, and for days at a time. This was done during the monument construction period, and also when other scientific work was being carried on by the government. Records of these persons are hazy, however.. Many years ago John Muir, the naturalist, and Jerome Fay went to the top of Shasta in order that Muir might obtain certain data. To make sure of his point, Muir and his companion remained there until 3 o'clock in the afternoon. A storm setting in, they were forced to spend the night at the hot sulphur spring.

Early the next morning Mr. Sisson sent men to timberline for them, and the two climbers were discovered in a precarious condition. They were taken to Sisson where Muir was confined for three weeks before his recovery.

The record of domesticated animals being taken to the top is more authentic. The first of these to reach the summit were two Geological Survey mules, named respectively Dynamite and Croppy. The ascent was made in the '80s from the McCloud side.

About 20 years ago, Thomas Watson, who has recently been residing at Redding, accompanied the only horse which has ever reached the summit of Shasta. This horse was taken up the ridge between Ash and Mud Creeks, and there are several pictures in the Shasta settlement showing the horse on top.

Many other interesting records and much intimate history of Shasta mountaineering existed with the old Sisson tavern, but most of this was destroyed in a fire several years ago.

The record box of Shasta is now crammed full of books and papers of unusual character. There are cards advertising stage lines

out of Sisson and McCloud running south into the Sacramento Valley, dating back to 1874. Most interesting of all, however, is the Bible, a large volume of rather unique design, placed on the summit in August of 1882 by a minister of Red Bluff, Cal., and dedicated, according to the fly-leaf inscription, "to the use of those who climb this mountain." There are hundreds of names written indiscriminately through this book, possibly thousands. The signatures have been scrawled through nearly every page of the book from Genesis to Revelations, in most instances directly across the printed matter. Some of the climbers, for whom the effort must have been great, painstakingly searched out and underlined Scripture passages that would appropriately describe their feelings. A veritable circle of names surrounds the passage describing the journey of Moses to the top of Sinai to receive the Commandments.

The spring receives more attention than any other feature of the summit. Roaring and gurgling and sputtering, the restless heated waters can be heard on a quiet day long before the overcoming sulphur vapor is noticeable. But the spring is subterranean; no water comes to the surface. In a place or two, drops of boiling hot water pop through the overlying rocks, but that is all.

The volcanoes of the near Shasta region, not considering Lassen Peak, have been active until a comparatively recent date. The gray cinder cone that stands just northeast of Sisson, between it and the mountain, is a formation said to be not over 100 years old. The Indians of the region still narrate the story of a terrible eruption when the midday became black as midnight, and Shastina's top was bathed in fire.

John Muir has described Shasta as the grandest of all the fire mountains of California. The volcanoes slumber, but are not dead, he believed.

"We can hardly fail to look forward to its next eruption," he wrote.

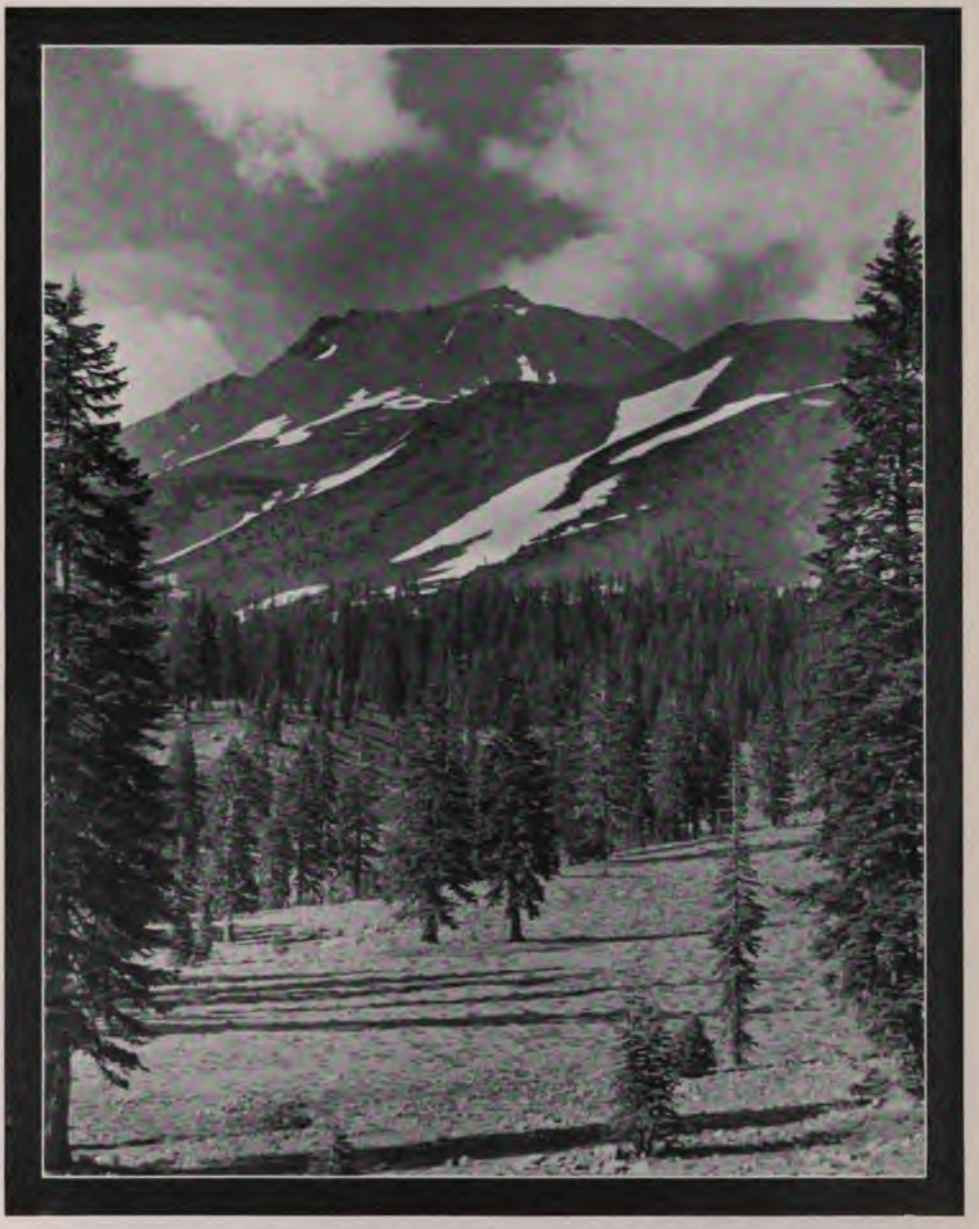


Photo by Winter Photo Co., Portland.

Shastina as seen from near Mazama Camp of 1915. Here are typical specimens of the Shasta firs.

Photos by R. J. Davidson.

Scenes on ascent of Shastina. Upper left—Party skirting the edge of a volcanic "bowl." Typical debris of a crater wall in right of photograph. Upper right—Long snow slope between Shasta and Shastina. Middle left—Looking down upon Shastina from summit of Shasta. Whitney Glacier in the lower right foreground. Middle right—Gigantic piles of volcanic material were piled everywhere. Below—Looking across some of the many gullies encountered in the t[illegible] from Camp Bronaugh to Shastina.

The Ascent of Shastina

By R. J. DAVIDSON.

One of the most enjoyable excursions from Camp Bronaugh and by far the most strenuous, not excepting the climb to the summit of Shasta itself, was the climb to the summit of Shastina, that secondary crater thrown up on the northwest slope of Mt. Shasta whose summit reaches an altitude of about 12,300 feet.

As a scouting party reported many interesting features on this trip, Dr. Carl Barck, of St. Louis, was persuaded to lead a party to the summit. Accordingly a little group turned out of their warm blankets long before sunrise one morning and made for the cook tent, where, between shivers, a hasty breakfast was eaten and lunches packed. The start was made from camp about 4:30 and the route led up the familiar trail to Horse Camp. From this point the party climbed the main ridge extending from the west side of the mountain and reaching a bench found themselves on a long snow slope. This was crossed at about right angles to the slope, keeping the course upward just enough to avoid losing altitude. A short distance brought the party to the brink of a deep bowl, approximately a half mile in diameter and beyond the farther rim could be seen another depression, with the goal, Shastina, rising as a symmetrical, truncated cone just beyond.

Here the good doctor paused and mapped out his course, which, to the most of the party appeared to involve an immense amount of lost energy. However, as he was the leader, his instructions were followed and before long it was realized that he had displayed good judgment. With unerring foresight he led the party over the steep sides of the bowl-like, hard-frozen, snow slopes on a gentle rise all the while, never losing a foot of altitude that would have to be regained. Here was true mountaineering, gained by long experience, and the ability to gauge at a glance the difficulties to be met and the distances and altitudes to be gained. The route was laid for the saddle between the flank of Mt. Shasta and Shastina's cone. Long before this objective point was reached the sun appeared over the mountain and proceeded to shine with an intensity that is known only in California. The hot reflection from the snow on all sides and the absence of air currents made this portion of the trip almost unbearable. Water was not to be had and for some reason everyone had neglected to bring canteens. After a final tedious and hot climb along the side of the steep slope the saddle was reached and the hard part of the work was

done. A beautiful little lake was found here and beside this the party rested and ate their lunch. The doctor had his time well figured and there was no need for hurry.

From this point on the interesting part began and there was something new and wonderful on every side. In the saddle there was a hollow which had every appearance of having once been a crater in itself, on the east the crater of Mt. Shasta towered some 3,000 feet above, and on the west were the bare rock slopes of Shastina; to the north Whitney Glacier wound its way down the mountain side, creased with deep crevasses and bergschunds. Ascending the slope of Shastina over huge blocks of shattered rock, the climbers came to the edge of the crater. This was found to be very rugged, although keeping the shape of an almost perfect circle; in places it rises in almost perpendicular cliffs, while the intervening sections were undoubtedly blown out by the force of the volcano. In various portions of the crater three small lakes were visible, showing deep blue in color.

In the crater's center a huge rock pinnacle rose to a height perhaps 500 feet above the crater's rim and connecting this with one side of the rim was a long ridge of snow, or hog-back, about a quarter of a mile in length, up which the party climbed to the topmost point of the pinnacle. From here the view was almost as extensive as from the summit of Shasta, excepting that to the east, which, of course, was shut off by the mountain itself. On this point the party rested for some time while Dr. Barck explained the different formations; how Shasta was first thrown up as an active volcano; how another crater became active in its side and Shastina was formed, and still later a smaller crater formed itself in the saddle of the junction of the two older cones. Each member of the party then signed a short description of the climb, which was placed in a metal can in a crevice in the rock and the descent was begun. The return trip was made by a different route in order to take advantage of several long snow slides, camp being reached in ample time for dinner. All who made the trip were very enthusiastic about it, and felt well repaid for their efforts.

A Moonlight Glissade

By MINNA BACKUS.

Will we ever forget it—that delightful evening spent on the snow fields? No bothersome grease paint or goggles and no danger of sunburn! Just a clear, mild evening, with a gorgeous California sunset setting off the sharp outlines of Castle Crag, which loomed up gray and rugged against the flame colored western sky.

We left camp at 7:00 in the evening and started for the snow, laden with alpenstocks, canvas sliders and wash basins. Sliding in wash basins was an innovation which did not prove highly successful, as steering was difficult—and anyway, what's the fun of sliding if you're going to keep dry?

After climbing a little over an hour we reached a snow field which was steep enough to make the sliding good. Up we would trudge and down we would slide, only to do it all over again. Singly, tandem and toboggan we came down the snowy slope and some of the more adventurous even attempted it standing up. No count was kept of the number of times we climbed that ridge. The fascination of taking "just one more" is as strong is glissading as it is in jumping the big breakers in the surf.

It was not until near 10 o'clock that we answered the call of the big camp fire at Horse Camp and left the mountain for timber-line, where hot coffee and sandwiches, thoughtfully provided by the outing committee, awaited us. After doing full justice to the tasty collation, and indulging in all the time honored camp fire stunts, came the walk home, about a mile through the timber, but as the moon was shining brightly and the trail was over snow a good part of the way, we experienced no difficulty in reaching camp.

For eight of us it was the last night in camp and it was with rather sober thoughts that we lay on our beds of boughs and looked up through the trees at the Mountain, now no longer a stranger to us, but an old friend; and still higher up in the heavens the stars gleamed down on us, so thickly piercing the sky that it seemed almost impossible to get a pin point between them.

But with mountaineers sleep cannot long be thwarted, and soon the "Sand Man" was exacting his toll, while silence reigned supreme over Camp Bronaugh.

Mazama Educational Movement

By EDITH ELLIS.

"To him who in the love of nature, holds communion with her visible forms, she speaks a various language." Mazamas love nature in all her forms and they lose no opportunity to commune with her. Their chances for studying her "visible forms" are very great as they stroll frequently through this wonderful "God's out-of-doors," but nature's language is a ship of thought, so deep-freighted with truth and beauty, that it takes more than a mere casual walk through her woods or a climb to the top of her mountains to really comprehend her "various language" when she speaks to us. We derive pleasure from our expeditions in proportion to our powers of observation. If we merely enjoy the exhilaration of a rapid walk in the fresh air and the physical gain so acquired, we receive only a minimum benefit. If we recognize "nature's forms"—the birds, flowers, and indications of the past history of the region—and have a knowledge of its prehistoric inhabitants or legends, then our pleasure is greatly multiplied.

Our club is a scientific club and as such we should stand in the community as disseminators of scientific knowledge. Do we fill this position? Are we sought for to decide questions arising along natural science lines? If a citizen of Portland wanted any information along these lines, would his first impulse be to apply to Mazama headquarters?

For years in the past the club stood very high as an organization of science and research. One needs only to read some of the old Mazama magazines, rich in scientific and authoritative information, to know what a high position it held. By no means has it been hibernating in recent years, for in other ways it has made wonderful strides, until the name Mazama has become a watchword of progress. Much has been accomplished in the way of exploration by the local walks, the membership has increased at a most rapid pace, we are established on a good, firm financial basis and we are now the proud possessors of a well-equipped club home.

As individuals many of our members have specialized along scientific lines, a few being almost wizards in their art, but as an organization little has been done recently to deserve the name "scientific club." True, we have had some rare treats in the way of scientific lectures on our annual outings, but no systematized study within the club. There is a great deal of talent in the organization and no doubt much hidden talent were the opportunity given to develop it.

"Nature's forms" are everywhere to be enjoyed and studied in this region during the entire year and coming in contact with them so often as we do, we should not only know the mountains, the glaciers, the streams, the canyons and all the evidences of Indian life, but we should be on most intimate terms with the birds, trees, flowers and the fish. They would then be our best friends, speak to us in their silent language, and though alone in the woods, we should never feel a loneliness there.

As I have roamed over these hills and valleys for four years with these nature lovers, many questions have come to my mind. Since lumbering is one of our great industries why do not *all* Mazamas know our common trees and their uses? Fish is *one* source of our "bread and butter," why do we not visit the fish ladders during the salmon run, one of Oregon's great sights? Why are we not studying our fish and, on our long walks, carrying them from one part of the country and stocking the streams and lakes in another part of the country? Why are we not all learning the birds, their calls, their songs and their characteristics? Why do we not know the distribution of all of our common Oregon animals? On our moonlight walks why not become more familiar with our more common constellations? Do we know the "why" of our hills and canyons, the elements of our soil and the distribution of our minerals? Why are we not analyzing our wild flowers and collecting an extensive harbarium? Oregon abounds in Indian legends and myths and names. Should we not be more familiar with them?

Some one has said that the study of nature is learning those things in nature that are best worth knowing, to the end of doing those things that make life most worth the living. It would seem we must learn what is true in order to do what is right, but I should go further and say it is not merely to make people *do* the right things but *enjoy* the right things.

When we realize that from the love and study of nature, poets and artists get their inspiration, and all the love of art, science and religion sprang from nature, then we must know how necessary it is that we as Mazamas should at least master the A, B, C's of nature study.

Some such thought actuated the Mazamas to begin a study course and their president, Jerry E. Bronaugh, put the educational committee, consisting of John A. Lee, L. F. Harza, Miss Harriet Monroe, Hart K. Smith and myself to work for the purpose of considering the desirability and practicability of systematic study work along these lines of natural history and natural science and for formulating plans for considering such studies, if deemed advisable by them.

Several fundamental problems of importance confronted us:

1. What subjects would arouse the greatest interest in view of the nature of the activities of the club?

2. How much time could the average member be expected to devote to such work?

3. Should the studies be conducted as purely lecture courses, text-book courses, or a combination of both?

4. How many subjects could be studied at the same time, and, if more than one, how could the hours be arranged so that those interested could take up more than one study?

We felt that these subjects should be pursued in a semi-popular, rather than a technical manner, and only to an extent which would add to the pleasure of an outing or a walk through the forests or mountains, and without the purpose of developing scientists. That it should not be the purpose of the proposed studies to segregate from the membership those of scientific inclinations and thus possibly destroy the present commendable democratic spirit which is one of the characteristics of the club life was one of the committee's aims.

We felt that simultaneous study of several subjects was essential to provide for the natural inclinations and interests of all members and recommended the adoption of (1) Botany, (2) Ornithology, (3) Geology, and (4) Archaeology, including local history.

We felt that for the best interests of all members, each course should consist of a series of lectures, each covering a particular subdivision of the subject in such a manner as to answer, without further study, for any who may be too busy to follow a text-book course.

Each lecture is announced in advance and a definite assignment of study in one text-book, together with a list of other recommended collateral readings, is posted on the bulletin board for the benefit of any who can and wishes to delve deeper.

Each lecture is followed by a general discussion. The council gave the club rooms over to study work each Thursday evening; botany being given the first Thursday of each month; ornithology, the second; geology, the third, and archaeology, the fourth. This permits anyone to follow the work in all the subjects.

The courses will continue for eight months, making eight lectures on each subject. Leaders were chosen as follows:

Botany ..... John A. Lee
Ornithology ..... Jerry E. Bronaugh
Geology ..... L. F. Harza
Archaelology ..... Hart K. Smith

These leaders, together with the other members of the committee, are all active Mazamas, devoted to the club and eager to enhance its value as a means of better understanding the wonders of this great Northwest. They are the most energetic and diligent workers and are deserving of the club's highest praise for the time and effort they have put forth upon the work, securing some of the best authorities in the Northwest as lecturers and planning for others in the future.

We have had the hearty co-operation of Dr. P. L. Campbell, president of the University of Oregon, of many of the faculty at Reed College; of many of our members and many who are not Mazamas, all of whom have served us as lecturers or have promised to serve. We feel greatly indebted to them for their assistance as we do also to our excellent librarian, Miss Isom, who has aided us greatly in furnishing us much needed books.

A source of much gratification has been the ready response given the movement by the Council and the members generally. The really live Mazama spirit and energy has been shown again in the large and enthusiastic audiences, ever ready and willing to welcome any new activity for the amelioration of the club. At times even standing room has seemed at a premium and we have contemplated securing a larger room for the lectures.

Real earnestness is manifest in many ways. 'New groups have already been organized to go out and study the birds. A demand for a better knowledge of the geology of our region has already crept among our local walkers, the Indians are living again in our memories, and after one talk by Mr. Gorman on the conifers, the club room was so strewn with tree specimens that it looked like Santa Claus' sample room for Christmas trees.

Our first response came only a few minutes after our president had appointed the educational committee. A desire was expressed to have a club herbarium. It was readily met by Mrs. Eleanor G. Sheldon, who gave the club a nucleus for a herbarium, collected by Mr. Sheldon many years ago. Messrs. Gorman and Lee are now classifying the material and the club bids fair to have what I think it very much needs.

Dr. Campbell tells us that he and a considerable number of the faculty from the University, and perhaps a large delegation of summer school students, are planning to go on the summer outing. With such a prospect we should have many intellectual feasts.

Following is a list of the lectures which we have already enjoyed:

October 7.—"The Conifers," M. W. Gorman.

October 14.—"How to Study Birds," W. L. Finley.
October 22.—"From Nebula to Man," Dr. Warren D. Smith.
October 28.—"Native Names, Myths and Legends," H. H. Riddel
November 4.—"Conifers (con.) Deciduous Trees," M. W. Gorma
November 11.—"Ten of Our Most Common Birds," Dr. E. Welty.
November 18.—"Atmospheric and Aqueous Agencies," Robert H Hitch.
November 23.—"Pioneer Heroes of Today," Mrs. Eva E. Dy
December—"Deciduous Trees" (con.), M. W. Gorman.
Following have been arranged for:
An Illustrated Lecture on "Birds"—W. A. Elliot.
"Organic and Igneous Agencies,"—Miss Pauline Geballe.
Geo. H. Himes.
Illustrated Lecture, "Trees and Ferns of Oregon."—A. R. Sweet ser.
"Structural Geology"—L. F. Harza.
"Indian Reminiscenses"—Judge M. C. George.
John Gill.
"Oregon Wild Flowers," Illustrated—Prof. A. R. Sweetser.
Hart K. Smith.
"The Making and Reading of Topographical Maps," R. M. Wilson
"Distribution of Animals of Oregon," Prof. E. Borard.

COLLATERAL READING.

Botany.

"Flora of Northwest America"—Howell.
"Flora of State of Washington"—Piper.
"Flora of Western Middle California"—Jepson.
"Elementary Flora of Washington"—Frye and Riggs.
"Field Book of Western Wild Flowers"—Armstrong.
"Wild Flowers of California"—Parsons and Buck.
"Mountain Wild Flowers of North America"—Henshaw.
"Alpine Flora of the Rocky Mountains"—Henshaw.
"Manual of the Trees of North America"—Sargent.
"Trees of California"—Jepson.
"Forest Trees of the Pacific Slope"—Sudworth.

Ornithology.

Text—Lord's "Oregon Birds;" reference—Bailey's and Finley' books on birds.

Geology.

Textbook—"Compend of Geology"—LeConte.
Reference—"Elements of Geology"—LeConte.
"College Geology"—Chamberlain and Salisbury.
"Geology"—Chamberlain and Salisbury.
"Rivers of North America"—Russell.
"Glaciers of North America"—Russell.

Archaeology, including Local History.

"Myths and Legends of the Pacific Northwest"—Catherine Judson.
"The Columbia River," W. D. Lyman.
"Handbook of Indian Languages"—Prof. Franz Boaz.
"McLoughlin and Old Oregon"—Eva Emery Dye.
Second Volume of the Journal of Lewis and Clark.
"Fifty Years in Oregon"—T. T. Geer.
"Portland, Oregon—Its History and Builders"—Joseph Gaston.

"For us the fields are new,
For us the woods are rife
With secrets deep and true;
And heaven but a tent of blue
Over the game of life."
—Van Dyke.

Silver Creek Falls as Seen by The Mazamas

By W. P. HARDESTY.

The falls to be described lie about 45 miles southerly from Portland, in northern Oregon. The term "Silver Creek Falls" is really not sufficient, as there are two series of falls on both the north and south forks and also on the main Silver Creek.

On the occasion of the Mazama's local outing trip over Decoration Day, 1915, to visit the region, but few of the members had any definite idea what the falls were like, as none, except the leaders, had visited them before, nor had they seen any photographs. For all but the two leaders it was an unexplored region that they were visiting.

Silver Creek has its sources in the foothills of the main Cascade Range in Marion County, and it flows northwesterly through Silverton into the Pudding River, which in turn empties into the Molalla only a mile or two from the Willamette. The two forks of the creek unite about ten miles southeasterly from Silverton, and it is on the forks that the principal falls occur.

This is a region of "faults" in the geological formation, and the presence of these in the lava rock makes possible the many remarkable falls. The most striking example is at the Upper Falls of the South Fork. Here one finds a rolling table land across which flows the creek but little below the general level, with nothing to indicate the nearness of the falls until, in passing down the creek, one all at once comes out on a rocky brink.

By a mighty break in the formation the plateau drops away into a huge, nearly semi-circular basin at the upper end of which the creek plunges over the brink with a sheer drop of over 180 feet into the pool of a large basin below. The rim rock overhangs the softer structure underneath, so that part way down the drop one can readily reach a distance of 75 feet behind the falls. In places there are small caves at the extreme back of the undercut, and below, a steep talus of broken rock extends down to the pool. The curving sides of the rim and the basin form a huge amphitheatre which is probably 500 feet across at the extremes.

In the opinion of the Mazamas on the trip, this fall is more impressive than Multnomah Falls, on the Columbia. Though having only about one-fourth the height, the size of the basin and extent of the overhang, together with the fact that the volume of water is several times as much, combine to form a more interesting sight. The stream is 25 to 30 feet wide.

About three-quarters of a mile down stream from the Upper Falls are the Lower Falls of the South Fork. These occur in the deep canyon leading from the Upper Falls, and the top is far below the table land bordering the canyon. The Lower Falls were estimated about 80 feet high, and as there is a slight break near the middle the plunge is not nearly so pronounced. The stream here is 30 to 40 feet wide.

On the North Fork of Silver Creek are a number of distinct falls. The Mazamas camped for one night just above the main North Fork Falls. The stream here flows through a slight depression in the rolling country until it reaches a fault in the rock formation. Here it plunges over a cliff to a depth of about 145 feet.

At the head of the falls the stream is contracted between two huge rocks until one can almost step across it. This and the sudden dip in the bed produce an initial velocity that helps to project the falling stream far out. The softer rock underneath, which has crumbled away, produces a pronounced overhang in the rim of the falls. From the flat valley above, the creek at once drops into the canyon below.

One-half mile or so above these falls are the Upper North Fork Falls. These are only about 65 feet high, but the water comes over in a sheet fully 40 feet wide.

Around the head of the principal falls visited by the Mazamas the porous character of the rock was noticed. The water issuing from this flows over the surface so that in many places the seepage water runs over the bare rocks forming the rim of the falls basin. In the undercut recesses back of the falls the dripping water shows the seepage through the formation.

The principal falls above mentioned are located in sections 11, 12 and 14 in T. 8 S., R. 1 E., W. M. As this is within the twenty-mile limit of the grant of lands to the O. & C. Railway (now Southern Pacific) section 11 is railroad land, but sections 12 and 14 (the latter containing the great Upper Falls on the South Fork) were subject to entry in the usual way, and practically all of the land has been taken. It is to be hoped that the land including the principal falls will, in due time, be acquired in some way for the public use, so that future generations may have full access to these great, natural scenic wonders.

The Mazamas were told of other falls along Silver Creek, even more interesting though not so large, but time did not permit their seeing any more. Some of these are almost inaccessible, requiring the use of ropes for getting into position for a full view.

The Mazamas were much impressed with the region visited, as one affording all kinds of scenic attractions.

Climbing the Rockies of Glacier National Park

By LULIE NETTLETON, *of the "Mountaineers."*

The 200-mile expedition of the Mountaineers through Glacier National Park in August, 1914, did much to demonstrate both the practicability and the delights of mountain climbing in that remarkable section of the Montana Rocky Mountains.

There never was a better field for the activities of the Mountaineers than Glacier Park. To the full the Mountaineers enjoyed the Park's fine trails, its unclimbed peaks, its gleaming snow fields and hanging glaciers. We enjoyed its glimpses of wild life—the goats, the deer, the big horn sheep, the dainty ptarmigan, the watchful whistling marmots.

The Mountaineers' camps varied in altitude; the highest was at 7,000 feet. We crossed the Continental Divide five times. We visited all of the Park's glaciers, climbed all of its peaks that time permitted, and felt with the Park an intimate acquaintance that is denied the casual tourist. We know its sunshine and its shade, its lovely, grassy slopes, and its rugged walls. Our hands may be scratched by too close contact with jagged rocks, our boots may be cut and worn, but our muscles are hard from the healthful exercise. We feel the inspiration of its peaks and its vistas of interlacing hills, while our memories are enriched with a wealth of pictures to recall in future.

On the grassy banks of Fortymile Creek, six miles out from the Park's entrance at Glacier Park Station, the Mountaineers made their first camp—one hundred strong. Then on the morning following the real start of our pilgrimage was made.

The call was for 5:30, and dawn is very lovely in the Park; the soft morning light on Mount Bison and the walls about us, the glow in the sky, the night's shadows still lurking in the canyons, are memories to treasure.

Baggage packed, breakfast eaten, lunches handed out, the main party took the trail for Two Medicine Lake, seven miles distant, but a section of the Mountaineers made an all-day hike of it by a side trip to the summit of Mt. Henry (8,500 feet). We of the latter left the trail, lunched at a creek below the mountain, and climbed the long talus slope on the north side to the summit of the ridge. Then we followed along the ridge over the rocky pinnacles not visible from below, and at last stood on the highest peak. Our station commanded

Looking east from Swiftcurrent Pass on the Continental Divide; Glacier National Park.

Going-to-the-Sun Mountain and Going-to-the-Sun Chalets, head of St. Mary Lake; Glacier National Park.

a wonderful view of Rising Wolf Mountain, Appistoki Mountain and the peaks surrounding Two Medicine Lake. The view was a delight, for it was the first real sight of what was awaiting us in the great region to which we were bound. We built a cairn and left our record, then dropped down to the trail, and were soon in camp beside the lake.

"On to Dawson Pass and over the Continental Divide!" was the slogan next morning. We followed an old trail on the north shore of the lake, first on the level, then over gentle forested slopes, then laid siege to the long pull up to the Pass. Dawson Pass is 7,500 feet in altitude and is a magnificent viewpoint. We saw Mt. Stimson (10,155) feet, and its neighbor Pinchot Mountain (9,330 feet). North lay Triple Divide Peak, particularly interesting because it separates the waters of the Pacific, the Atlantic and the Arctic. However, if this peak sends waters to the North Pole the latter sends in exchange its best guaranteed icy blast. We received the full brunt of it as we reached the summit of the pass. Thrilling, exhilarating, splendid in its power, the strongest men bent before it; some of the women were blown completely off their feet. For a tingling, thrilling moment one could stand it and then had to fly to a sheltered spot. It was necessary to wait on the pass for the pack train, and each available rock held its Mountaineer crouching in its lee side in such skulking attitudes that a newcomer might have thought he had walked into an ambuscade. Moments of waiting over, we followed the trail over the pass down to timberline, then over an elk trail down to Nyack Lake, where our next camp was made. Weary packhorses made a day's stop at Nyack necessary; of this stop a notable "wash day" and an elaborate "pow-wow" were features.

Our next move was down Nyack Canyon through a pine forest studded with dainty flowers, and with occasional glimpses of waterfalls foaming over the cliffs above us. Then we trudged up the long 3,000-foot pull to Red Eagle Pass. In crossing the pass we crossed the Continental Divide again, and dropped into a camp below Red Eagle Glacier at 6,500 feet altitude. Camp was in a charming Alpine park, with the massive wall of Almost-a-Dog Mountain at the west, but of especial interest to the Mountaineers was Red Eagle Glacier, its long, gleaming slopes and ragged crevasses calling us to come.

Morning found three brave Mountaineers making the ascent of Almost-a-Dog, while a large proportion of the party was ready for the Glacier; boots calked, alpenstocks in hands, and all women in knicker-bockers. The Red Eagle Glacier was not of the tumultous character of Blackfeet or Harrison or several we saw later in the Park, but it was most interesting. The slopes were steep enough to give one a zest, and

in the crevasses are exquisite coloring, shading from turquoise-blue to azure. A fascinating long tongue of snow running up three hundred feet, filling in a break in the wall behind, invited coasting. Those who have not tried coasting on a snow field have before them a most exhilarating experience, and Red Eagle was a perfect coasting field. Some experts started from the very top, standing, using alpenstocks for a brake, and came safely down. Some started, and ended, sitting; others started sitting and reached their destination head first, flat on their backs, but all alike laughing and chuckling and feeling not a whit over five years old.

Gunsight Lake was our next destination. After a long pull over a talus slope of Almost-a-Dog, we attacked a steep chimney which necessitated hand-over-hand climbing, just the kind of an ascent a mountain climber loves. The leaders climbed up first and anchored a life line, the party using it as a hand rail. Safely up the chimney, we stood on the barren waste and looked at the myrid of mountain peaks all around us. We located Citadel Mountain, Fusilade Mountain, Gunsight Lake below, but what claimed our closest attention was the stupendous mass of Blackfeet Glacier. There it lay, the largest glacier in the Park, its lower area discolored and worn, while just above the ice was torn and seamed with crevasses; while splendid seracs, icy pillars and domes showed the results of the mighty conflict waged eternally between the Ice King and the Sun God.

Our camp in Piegan Pines, our next camp, was of unusual beauty, with a splendid stream, beautiful groups of pines and nearby peaks to try our mettle: Going-to-the-Sun Mountain, Siyeh Mountain (10,000 feet) and Piegan Mountain with its wonderful hanging glacier. A portion of our party from Gunsight Lake "hit the trail" for Piegan Camp direct, while others included a side trip to the head of St. Mary Lake. From Piegan Camp seventeen of us did Siyeh Mountain. Following the trail toward Piegan Pass, we struck up over the talus, pausing now and again to locate the peaks which loomed so gloriously—a gigantic relief map in the midst of which we, as tiny pygmies, roamed. We encountered two steep chimneys. The real summit of Siyeh is not visible from the trail, but is a symmetrical dome crowned with huge boulders. The greatest view thus far in Piegan Pass greeted our eyes when we had triumphantly climbed to the highest passable point. A sheer drop off of four thousand feet on the north side made us cling tightly to the rocks and peer with bated breath into the chaos below. Down on the floor of the meadow savage rock gave way to a grassy meadow where slept Cracker Lake, an intense blue jewel lying in its soft green setting. On the west lay the splendid ramparts of the

Garden Wall, with Grinnell Glacier lying back of it, and Grinnell Mountain beyond. On the far horizon loomed majestic Mt. Cleveland, the highest peak in the Park. Mt. Stimson and Mt. Jackson, each over ten thousand feet, were glorious in the afternoon sun.

Camp at McDermott Lake came next—where we stopped two days. Certain of us here made the round trip to Iceberg Lake. This lake is a miniature Alaska, for here one has the novel experience of seeing icebergs in the making. They drop from the mother glacier into the lake and, bobbing up later, assume a variety of forms to suit all tastes—prehistoric beasts, castles; even a Lohengrin swan sailed majestically about in the plebeian company of an enormous crystal frog. Altogether it was a miniature Arctic Ocean, and since the polar bears were not in evidence a girl and a man boarded one of the bergs.

Such is a brief chronicle of the first ten days of the Mountaineers' pilgrimage through Glacier National Park. And this was but a half of our pilgrimage. Our final ten days in the Park—which included Swift Current Pass, Granite Park with its mountain sheep, Ahern Pass, Chaney Glacier and our five days' "permanent camp" on Flattop—were just as full of interest as were our first ten days.

Wilderness

"It's the great, big, broad land 'way up yonder,
It's the forests where silence has lease;
It's the beauty that thrills me with wonder,
It's the stillness that fills me with peace."

—Robert W. Service.

First Exploration of an Alaskan Glacier

By Miss Dora Keen, F. R. G. S.

The first exploration of the Harvard Glacier and the continuation of the observations of previous scientific expeditions in regard to the great glaciers of Prince William Sound, Alaska, have resulted from a field expedition recently completed by Miss Dora Keen, of Philadelphia, with the aid of three men.

Leaving Valdez, Alaska, on August 15, 1914, in a small launch, the party was set down next day near the head of College Fjord, with six weeks' outfit and two small boats, to one of which a detachable motor was affixed. The *object* of the expedition was two-fold: (1) *To explore the sources of the Harvard Glacier* in the unmapped section of the Chugach Mountains. If a pass were found, it was planned to cross the divide and return to tidewater down the Matanuska Glacier and the Valley trail of the same name—a traverse of some 50 miles of snow and ice, almost entirely without timber, and a succeeding 100 miles of a hard trail chiefly through uninhabited country. (2) To continue the *observations of the changes taking place in the glaciers of College Fjord and Harriman Fjord,* by means of photographs taken from lettered stations variously occupied since 1899 by the Harriman Expedition, U. S. Geological Survey, and the National Geographic Society's Expeditions. Both of these objects were accomplished, in spite of almost constant rain or snow, during an expedition that lasted six and a half weeks actually in the field.

The expedition was a private one, but undertaken at the suggestion and under the guidance of the junior leader of the National Geographic Society's Expeditions, Professor Lawrence Martin, of the University of Wisconsin. *The party* consisted of Miss Keen, leader, whose previous experience had been on the glaciers of the Alps and in two extended expeditions in Alaska, entirely on the glaciers of the Wrangell Mountains and resulting in the first ascent of Mt. Blackburn, 16,140 feet; Mr. G. W. Handy, of McCarthy, Alaska, who had been responsible for the success of her second attempt on Mt. Blackburn; G. A. Rabehl, also an old timer in Alaska, and Mr. H. L. Tucker, of Boston, topographer, whose previous experience had been on the 1910 Parker-Browne Expedition to Mt. McKinley and with the Yale Peruvian Expedition on Coropuna, 21,000 feet.

Photo by Miss Dora Keen.

Harvard Glacier, Alaska, as seen three miles away. "Tributaries impossible to cross on one side, and landing dangerous on the other, but still safely accomplished between waves, near ice cliff, with many packs." (See Miss Keen's article.)

Photos by R. J. Davidson.

The ascent of Shasta. Upper left—Whitney Glacier and shoulder of Shastina as seen by the climbers looking north. Upper right—Nearing the summit, looking down upon Shastina. Lower left—The series of summit pinnacles, east rim of the crater. Lower right—Climbers at 13,000 feet level. View is looking west at Eddy Mountains, 10 miles away.

Exploration of the Harvard Glacier.

The Harvard Glacier has a tidal ice cliff a mile and a quarter wide and 350 feet high, from which ice breaks constantly in summer, causing danger to small boats. Still, a landing was effected in safety on one side and supplies gradually relayed to a point seven miles from the face, where the ice was at last smooth enough to make travel on the glacier itself possible. Over another nine miles of crevasses the party succeeded in reaching the sources of the glacier, to a point where further progress was impossible, even on snowshoes, because of the shattered condition of the glaciers flowing from the steep divide. No pass being found, the return was made from this point by the same route. All the way, food, tents, etc., and for most of the distance fuel, had to be relayed on the backs of the party, and all the going was hard, so that three and a half weeks were spent in reaching an altitude of 6,100 feet, sixteen miles from the face of the ice.

Danger from snow slides also prevented any high ascent, but data of value were secured from which the first map of the region will be prepared. Observations of snowfall and temperatures will also throw light on the alimentation of the glacier and its many tributaries.

Photographs of the Glaciers of Prince William Sound.

Observations of some 20 glaciers in College Fjord, Harriman Fjord and Columbia Bay constituted the second part of the work, which is a continuance of the study of the advance and recession of these glaciers with a view to determining their causes. Some glaciers appear to have receded as much as a quarter of a mile in a year, while others near-by seem to have advanced as great an amount.

In spite of great difficulty and some risk in forcing a frail row-boat through solid jams of icebergs, which threatened to crush it, this part of the expedition also was accomplished without accident.

"Who hath smelt wood-smoke at twilight?
Who hath heard the birch-log burning?"

—Kipling.

Accuracy in Geography

By LEWIS A. MCARTHUR.

Patriotic Americans who come to the Pacfic Northwest in Pullman cars are wont to criticize Captain George Vancouver, because when he explored and mapped a very considerable portion of our beautiful country a century and a quarter ago, he fixed on many of the prominent topographic features, good old English names, and most of these English names have stuck, supplanting Indian names that in some cases were more descriptive and euphonious. Captain Vancouver's appelations have stood the test of time largely for a good reason, and that is because he was a very great geographer, and when the maps and charts of his explorations were published in 1798, they immediately came into general use as the only ones of the lands in question that were at all reliable. Seafaring men bought the books containing the details of his voyages, and kept the atlas volume, discarding the text. That is why sets of Vancouver's Voyages, minus the atlas, are not difficult to obtain, but a good copy of the atlas is a rarity.

Vancouver's maps and charts were so good that they were consulted for many years, and naturally the names engraved thereon came into general use, and thus it was that the Indian names were forgotten. While many would like to see the Indian words restored, yet that is no good reason for blaming Vancouver because he did a thoroughly good job when he mapped the lands he explored.

Lewis and Clark led the first great exploring expedition ever sent into the Far West by the United States Government, and were the forerunners of such expeditions as Wilkes, Pacific Railroad Surveys, Fremont, Ives, etc., and finally the various geological and geographical surveys of the territories that eventually developed into the United States Geological Survey of today. Lewis and Clark were robbed of a great deal of their official standing because of the fact that the federal government did not publish the results of their investigations. Indeed, the story of their notes and diaries reads like a romance, for they lay hidden nearly a century, while a much abridged story of the travels was accepted as the whole result of the trip. Then the real notes were found and we are now enabled to see exactly what the members of the expedition did. If, on their return to Washington, all their maps and charts had been redrawn and engraved, and published by the government, Vancouver would have had a rival, and the geographic names along the Columbia River in particular would have been vastly different today. Instead of there being a detailed

chart, early in 1808, of the lands along the Columbia, with all the features named by Lewis and Clark, over a third of a century elapsed before maps were produced that had any semblance of exactness, and then only in spots. In the meantime the names brought in by the missionaries, pioneers and traders to a large extent supplanted the names we now find on the old Lewis and Clark sketches.

The government has been surveying and mapping the West for years, and yet the work is in its infancy. Only about a half of Oregon has been topographically mapped with accuracy, and at the present rate of progress, it will take half a century to finish the survey. By that time the demands for maps of greater detail will require that the mappers work all over again in many places. It took a hundred years to map France, and before the surveys were finished, resurveys were already in progress. Of course we can now get reasonably good maps of nearly all parts of the Pacific Northwest, though of varying degrees of accuracy. Land office plats are available, though these are not made primarily for mapping purposes. In many cases the Forest Service has produced maps that are helpful to those who go to the mountains, but the great proportion of our two states will not be mapped satisfactorily until the Geological Survey does it, for that organization supplements its work in the field by the publication, in excellent form, of the data obtained. What we need are not only the surveys, but also well edited and printed maps with the results of the surveys. Even now there are good topographic maps of many square miles of Oregon and Washington that are of no use to the general public because they cannot be obtained in usable form. The Coast and Geodetic Survey, the Reclamation Service, Forest Service, Army Engineers and other bodies have all sorts of surveys, but they are of no great benefit to the public because they are so scattered. Not until the Geological Survey can extend its control through the two states and tie the fragments together and publish engraved sheets may we feel satisfied.

The great necessity for having map surveys accurately controlled is not always apparent to the layman, but a little consideration will soon convince the average map user that if a map is to be useful, it must be based on reliable data, both as to geographic positions of the places shown, and also as to the elevations and contours. Almost any good printing house is capable of publishing good looking maps, and if good looks were the only thing needed by a map to make it valuable, we could have all the valuable maps we want. However, something more than attractive colors and neat lettering is required. Maps to be really useful must delineate the country accurately and

clearly, and unless a map does actually portray real conditions, it is worse than useless, in fact at times a real burden.

It is for this reason that the Coast and Geodetic Survey and the Geological Survey spend so much time in extending accurate triangulation and levels into areas that are to be mapped. After the elevations and geographical positions of the important points are determined, it is not difficult to make an accurate topographical map in the field, and if any topography has previously been taken by other organizations, based on assumed data, it is often possible to reduce the topography previously taken to the correct data, and incorporate it with the surveys of the Geological Survey. This is being done with topography taken by the General Land Office, Army Engineers, Reclamation Service, and some private organizations, and it seems possible that the topography now taken by the Forest Srvice will be of use in making additional atlas sheets.

The Coast and Geodetic Survey is one of the oldest branches of the government, and was established well over a century ago. Among its important duties is the work of primary triangulation, and this has been proceeding for many years. Originally triangulation was carried on in several parts of the country on different bases, but now all the triangulation is based on the North American Standard Datum, which is a point in Kansas, the latitude and longitude of which are known to a nicety. Most of the triangulation in the eastern states is tied to this standard, and all geographical positions are figured with the point in Kansas as the base, though of course the actual latitudes and longitudes are expressed in relation to the equator and Greenwich.

From the North American Datum a broad line of triangulation has been thrown west near the 39th parallel to the Pacific Ocean tying in peak after peak and signal after signal. This belt has also been tied into Geological Survey points en route, to state boundaries, land surveys and even city triangulation. Belts have also been extended south from the North American Datum to Texas and thence west to the Pacific Coast, and these in turn furnish additional support to the values already determined by the main 39th parallel arc. From the 39th parallel, belts have been extended north to the international boundary, and then west along the boundary to Puget Sound.

Based on the datum brought through on the 39th parallel, an extensive system of triangulation known as the California-Washington Arc, has been built up from the south, sweeping across the Siskiyous, up the west slopes of the Cascade Range, through the Willamette Valley and on to Puget Sound. As far as western Oregon and Washington are concerned, they are now well equipped with primary control points,

and the Coast and Geodetic Survey has permanently marked all these positions. Their accurate latitude and longitude, as well as their elevations, may be secured from the Washington office of the Survey, or from various Survey publications at the Portland library. One result of the bringing into the Pacific Northwest of these belts of triangulation, one by way of California, and the other west along the international boundary, has been the correction of values formerly independently determined and used at various places in Oregon and Washington, reducing them all to the North American Datum. For that reason some sheets of the Geological Survey atlas, surveyed a number of years ago, are now appearing with the corrected positions of the meridians and parallels indicated, and all new work will be on the corrected projections. It is interesting to know that the Coast and Geodetic Survey is now running an extensive series of triangulation diagonally from Utah up through Idaho, into Oregon and Washington, for the purpose of furnishing correct positions en route and strengthening the points previously established in this territory. When the triangulation net of the United States is completed, no place will be more than 100 miles from a primary triangulation point. It is stated by the Coast and Geodetic Survey that primary triangulation can be carried on so that the probable error in computed distance between points is not more than 1 in 100,000, or about one foot in 20 miles, an error that is almost negligible.

In addition the Geological Survey has done considerable triangulation and this is being co-ordinated with the Coast and Geodetic Survey as rapidly as possible and figured to the North American Datum. When topographic maps are made on large scales, especially in a partially timbered flat country, the Geological Survey puts in additional horizontal control by means of transit lines, known as primary traverse, placing permanent marks at frequent intervals. Such permanent marks will be found in many places in the Willamette Valley, for it has nearly all been controlled.

Both the Coast and Geodetic Survey and the Geological Survey are constantly running level lines, based on mean sea level, and the United States is reasonably well covered with such lines. The small, round bench marks are familiar to nearly everyone who travels much in the great outdoors. Precise leveling is carried on with a high degree of accuracy, and the maximum error allowed is equivalent to approximately four inches on a 400-mile line; all such lines are run in closed circuits or loops, and if, when the line is finally brought to an elevation that has previously been determined, the results obtained in the leveling do not check within the limits of variation, the work is done over again. It is difficult for a layman to comprehend the care that is

bestowed on this work, and the complicated formulae that are used in the final adjustment. Refraction, temperature, sunlight and other factors are all taken into account. Primary levels are somewhat less exact than precise levels, and the allowable error in closing a 400-mile circuit would be about a foot. The Geological Survey runs many miles of primary levels preliminary to getting out topographic sheets. The law requires that permanent bench marks be set every few miles, and complete descriptions of these, as well as the precise level bench marks, with elevations computed to the nearest thousandth of a foot, may be obtained by writing the respective surveys at Washington. In the near future the Geological Survey expects to publish an index map of Oregon which will show just what topographic sheets have been made and all the points that have been located by triangulation and the location of primary traverse and level lines. Both Oregon and Washington are reasonably well leveled considering their size.

When the topographer comes on the ground to make the topographic map, he sets up his map board at some point of known geographic position and elevation and sketches his map as he goes. He generally works along a road or some other route that is reasonably well cleared of trees and brush. By means of his instruments he keeps track of his changing horizontal and vertical positions until he reaches a second point of known location. At this point the values that he has brought with him must check with the new known values. If they do not, he must go back and work the line over again until it does check with the second known location. This method is generally used in the flat areas that are mapped with close contour intervals of 25 feet and less. In the high mountains and rough country the plane-table boards are set up on prominent points whose positions are known by previous computation, and from which good views may be had. Then the lower country is sketched in on the map, locating minor points by plane-table triangulation. The field work is done with hard pencils, and the maps are inked in in colors at Washington during the winter months, and later engraved and published.

There is still another phase of map making that requires accuracy and that is the use of geographic names. In a country as large as the United States, developing rapidly, with a multitude of Indian names from many tribes, confusion is bound to occur. Conflicting names and variations of the same name formerly caused so much trouble that in 1890 President Harrison appointed what is now known as the United States Geographic Board. This Board is composed of representatives of various departments and bureaus at Washington that have occasion to make frequent use of geographic names, and its duty is to adopt

standard names in cases of dispute, it being imperative on the part of government officials to use the adopted forms after decisions are rendered. Disputed cases are referred to the board, and investigations are made, sometimes lasting many months, and printed lists are published from time to time, containing the decisions. All authorities are investigated and particular attention is given to the most extensive local usage, which generally gets the decision.

Since its inception the United States Geographic Board has decided about 500 cases of Oregon and Washington names. Of course, as in all decisions between conflicting interests, it is impossible to please everybody. Many people have a personal interest in some forms of names, but when the general interest seems to lie elsewhere, the lesser interest has to give way. It seems to the writer that inasmuch as the Geographic Board has been willing to go into this matter in good faith and render decisions that are based on considerable study and investigations, we should co-operate to the best of our ability and adopt the standards until such time as they may be changed. The Board has evinced a disposition to change and revise its decisions from time to time if the decisions are not put into general use. If there is a change of opinion on the part of the public regarding some name, and the Board feels that the new form is well established, the general usage is adopted. There have been many cases where redecisions have been made. The Board has endeavored to keep pace with development.

It was for the purpose of co-operating with the United States Board that the Oregon Geographic Board was appointed by Governor Chamberlain in 1902. The Oregon Board has been gathering data as to the origin of place names in Oregon, and has been active in getting desirable names attached to unnamed features. It has investigated many disputes and sent in nearly a hundred recommendations to the United States Board. Nearly all of these recommendations have been adopted.

The rules governing the selection of good geographic names are simple. Euphonious names of Indian or historical origin and good descriptive names are far more desirable than names of individuals. Names given to geographic objects must be such that they will be generally used by the public. Long and cumbersome names should be avoided, and commonplace names such as Bear Creek, Elk Lake, Willow Creek and others have absolutely no place in geographical nomenclature. Names of living persons should not be applied except under exceptional circumstances, and most important of all, possessive names should not be tolerated. Names of places and scenic features should not have attached to them any suggestion of the ownership by

man. Guild Lake is the correct way to write it, not Guild's Lake. In cases where long periods of time have seen the universal adoption of possessive names, the apostrophe should be eliminated. Grants Pass should not be written Grant's Pass.

It is not always possible or expedient to go back to original forms of names used by Indians or early explorers, much as we might like to do so. It must be remembered that geographic names are used by great masses of people and that the living language generally governs in such matters. Unless the public will take the trouble to use the older forms, it is often useless to attempt to make a change. Those especially interested may be willing to use the older forms, but the great body of the people must be reckoned with.

In summing up, it may be stated that there are several important things to be considered in connection with maps. One is that good maps cannot be produced merely by compiling data from previously existing poor maps. Too many maps are made by simply putting together land office plats, some of which were made half a century ago. Too much dependence is placed on existing maps that look good, but do not portray facts.

Another thing is, that the good maps of the Geological Survey and the Coast and Geodetic Survey are based on accurate control, both as to geographical positions and elevations. Horizontal and vertical control is being extended over Oregon and Washington as rapidly as possible.

Maps to be good must be carefully edited, and all names should be checked with reliable data. Postoffice lists, railroad official time cards and other official information should be investigated. Names should be put on maps only in compliance with good geographical practice.

Existing names of Geological Survey and Coast and Geodetic Survey maps are accepted as authoritative until proved otherwise. Persons who believe these maps to be in error should submit statements to the Geographic Board for investigation. Government bureaus are glad to have real corrections to published maps.

Articles written for publication should be edited carefully for errors in names and the proper forms should be used. Articles in which elevations are used should contain correct figures and not elevations based on guess work.

Our scenic resources will be more widely known as they become more accessible, and they will be more accessible as more good maps are produced. Every effort should be made to secure additional topographical surveys in Oregon, and the maps will be made in proportion to the demand. No more concise representation of the industrial and economic conditions of a country is known than that portrayed on a good map. For these and many other reasons that argue for state development we should work for additional mapping in our state.

Spirit and Flesh

By Berton Braley.

Oh, I want to be off to the edge of the world,
  Away from the realm of law,
To the lands where never flag's unfurled,
  And the life is rough and raw.

I want to be off where the roads are new,
  Or there's never a road to see;
Forever and ever the long years through
  The wilderness calls to me!

I play my part in the business scheme
  Of barter and trade and sale,
But deep in my secret soul I dream
  Of the joy of the open trail.

I think of the pungent camp smoke swirled
  On the breath of winds that blow,
And I want to be off to the edge of the world—
  But I haven't the nerve to go!

—American Magazine, July, 1915.

Climbing Rooster Rock

By Margaret A. Griffin.

Rooster Rock, that interesting point on the banks of the Columbia River a short distance from Bridal Veil, rises to an approximate height of three hundred and twenty feet. The lower part is covered with soft earth and grass, and for some distance is not steep, but the rocky upper portion rises almost perpendicularly, and has every appearance of being impossible to ascend.

In fact, the rock seems to have defied ascent for many years, for, as far as we have been able to learn, no attempts to climb have been made until recently, except that of a sailor some years ago. He succeeded in climbing the north side but his accomplishment is comparatively uninteresting to us, because, so the story goes, he was unable to descend until a line had been shot to him from below by spectators.

Rooster Rock has long been of interest to Mazamas on account of the difficulties it presents, and its real conquest occurred on April 11, 1915, when a member of our club, Mr. Raymond Conway, instigated an attempt, which resulted in the successful ascent of himself, R. L. McLeod, Lester Miller, William Clark and J. N. Walker. Mr. Conway made the summit in twenty-one minutes, and his ascent and descent were made absolutely without the aid of ropes, a feat which is appreciated by those who later made the climb under his leadership in September.

On September 12th Mr. Conway led an official Mazama trip which he had put on the autumn schedule of local walks. A preliminary climb was made the preceding Sunday, when a Mazama register was left on the summit. On the morning of the trip a party of about seventy left the train at Bridal Veil, and walked back to Rooster Rock, while our leader, assisted by A. S. Peterson and C. H. Wortman, again climbed to the summit, making preparations for the afternoon climb by roping the rock. In addition to the above, the following reached the summit in the afternoon: E. E. Rose, A. K. Trenholme, H. G. Johnson, H. C. Craner, Miss Mary Hart, and Miss Margaret A. Griffin.

The first part of the climb, though not particularly dangerous, is difficult on account of the lack of firm footing in the soft earth which covers the rock. Having surmounted this difficulty, however, we come to the "Plateau of Decision," a narrow shelf where one may conveniently pause and decide whether to persevere or turn back. From this point, one by one, the persistent climbers make the ascent.

Rooster Rock, picturesque landmark on Columbia River east of Portland. View looking north, showing four Mazamas on the summit and one in the notch on the right near the top. The women in the party are included in the group on the summit. (See "Climbing Rooster Rock.")

Rooster Rock, looking southeast, also showing climbers on the summit. As this view and the preceding one were taken at right angles to each other, it may be seen that the peak presents strenuous climbing. This view is looking southeast and shows Crown Point of the Columbia Highway in the background.

Stepping off the end of the shelf onto the wall of rock, the climber begins the interesting part of the ascent. Here the handholds are comparatively secure but far apart, and there is a precipitous drop from the end of the shelf to the base of the rock itself, a distance of perhaps two hundred feet. But if the climber can forget the distance below him, there is perhaps less peril felt here than at any other point on account of the firmness of the rock. Any undue feeling of confidence is soon disturbed, however, when he reaches the next turn. At this point a great boulder rests on a projection of the rock, with just enough space left between the two to form a rest for the foot. Below—nothing. Above—nothing. To the left and to the right—nothing. In front, a waist-high boulder which the outstretched arms cannot quite span, and room enough for one foot. In order to get around this obstruction, it is necessary to place the left foot in the crevice, put both arms around the boulder, and swing the right foot to a place of safety on the opposite side. The writer made the mistake of putting the right foot in the crevice, and was obliged to embrace the rock very affectionately while shifting feet, and although the rock is really secure, must confess to a feeling of distrust while making this change of position. The most perilous part of the climb immediately follows, and brings the climber to the summit.

Here we climb on the edge of a ridge. Many of the stones are loose and each step must be carefully tested by each climber, and many supposedly secure foot rests must be sacrificed. The only encouraging thing about this part of the climb is that it ends it. On the summit we saluted the flag, signed our names in the Mazama register, wrote on the fly leaf our leader's jingle, "Rainier's fourteen, and Hood's eleven; but Rooster Rock is nearer heaven," heartily agreeing to the sentiment. The descent was even more exciting than the ascent, but was made without mishap.

As before stated, our route on the rock had been roped, the ropes being firmly secured to the rocks at intervals, and during the last part of the climb we were further protected by life belts, to which were attached ropes held by our leader on the summit. The ropes, however, were used as a means of lifting the weight only where the climber's reach was insufficient, and the life belts proved to be a precaution only, none of the climbers being forced to resort to their actual use. They were invaluable, nevertheless, as a source of encouragement. Nothing was left undone to insure the safety of the climbers, and we appreciated the supervision which made possible for many of us, a climb which doubtless would not otherwise have been attempted.

Future climbs will no doubt be made, with ropes and possibly without, but the ascent of Rooster Rock is certainly not one to be attempted alone by any but able climbers, and not at all by any who are in the slightest degree subject to dizziness. A steady nerve, clear head and a firm grip are required from the outset. The surrounding country can be seen to much better advantage from higher points more easily reached, and the sole object is the joy of the climb, which in spite of the danger is keenly felt throughout the ascent, and the satisfaction of surmounting a difficulty.

"Away, away, from men and towns,
To the wildwood and the downs—
To the silent wilderness,
Where the soul need not repress
Its music lest it should not find
An echo in another's mind,
While the touch of Nature's art
Harmonizes heart to heart."

—Shelley.

Useful Books on Botany for the Mountain Climber

By M. W. Gorman.

Among the many attractions which greet the mountain climber, whether veteran or amateur, none so readily claim the attention or retain the interest as the profusion of wild flowers which our northwestern mountains offer to the numerous visitors who are now annually attracted to camp at timber-line and ascend their rugged slopes.

Some climbers are interested in the glaciers and moraines, others give their attention to the fumaroles, a few study the rocks, birds, or mammals, while many are drawn thither by the good-fellowship and social features of camp life and the excitement of the climb, but all exhibit enthusiasm over the flowers which greet the eye on every side.

The sandy slopes are covered with Mt. Hood Lilies, Adder's-tongues, Cat's-ears, Eriogonums, Anemones, Lupines, Gentians, Phloxes, Jacob's-ladders, Lungworts, Penstemons, Painted-cups, Louseworts, and Agoseris. The grassy glades and open sub-alpine woods furnish Elk-grass, Buttercups, Cinquefoils, Violets, Asters and Erigerons. The moist slopes and wet banks yield Marsh-marigolds, Monkey-flowers, Bog-violets (Butterworts), and Sweet Coltsfoot. The rocky ridges are dotted with Alpine ferns, Rockcresses, Stonecrops, Saxifrages, Bluebells and Hawkweeds. The higher slopes greet us with great masses of Lutkea, mats of Bearberry, the Red and Glandular False-Heather and the White Heather. The rocky cliffs are brilliant with the rose-purple cushion-like tufts of the Moss-Campion, and their crevices are chinked with Alum-roots. Above all these we sometimes find in the scoriaceous ridges the Alpine Collomia with its thread-like roots penetrating the unfriendly soil for three to four feet in its effort to maintain life under such unfavorable conditions, while in the open woods about and immediately below timber-line the number of species is too numerous to mention and the struggle of plant life for existence is not alone with the elements but with the encroachment of its numerous neighbors as well.

So universal is the desire to know something about our mountain flowers that during our annual outings we are frequently asked the question—"What book would you recommend me to get in order to learn something about our Northwestern flowers?" To all those with

a fair knowledge of botany we would unhesitatingly recommend Howell's "Flora of Northwest America," Piper's "Flora of Washington," or Fry & Rigg's "Northwest Flora." To beginners and to those whose knowledge of plants is yet limited or elementary, there are three other books, the first two chiefly devoted to mountain flowers and the third covering the general flora of the whole West, that we believe will prove of the greatest service to all our members who are interested.

The first, "Mountain Wild Flowers of America," by Mrs. Julia W. Henshaw, is, as its preface states, for the use of the general public. As this book is intended more for the use of the general reader than for students or botanists the flowers therein described are classified according to color and without special reference to their scientific relationship, for the first attribute of a plant that attracts the traveler's eye is invariably its color, his first question usually being, "What is that beautiful red flower?"

This is undoubtedly the best book for the beginner. The total number of plants referred to, and more or less fully described, is 331, of which 116 are described under white to green flowers, 44 as pink to red, 56 as blue to purple, 73 as yellow to orange, 29 as shrubs and 13 as miscellaneous. Of these, 105 species are illustrated by 100 uncolored, full page plates, which are so excellent that with the plant in hand the veriest amateur can easily identify all the species illustrated. And with these as a basis he can usually determine all other plants of the same genus that are described in the volume.

Of the 331 species referred to in this book 217 occur in Oregon and 14 additional are to be found in Washington, thus aggregating 231 species with which the beginner can soon become familiar.

Included in the above 231 are 12 species that have been introduced from Europe, of which one, the Watercress, is a useful food plant; three, Red Clover, White Clover and Cow Vetch, are desirable forage plants; two, Night-flowering Catchfly and Yellow Melilot, are sparingly cultivated garden flowers; while six, Lamb's Quarters, Creeping Buttercup, Field Penny-cress, Shepherd's Purse, Field Sow-thistle and Ox-eye Daisy, are more or less troublesome weeds. The remaining 219 species are native flowers, chiefly alpine or sub-alpine. The Ferns, Horsetails, Club-mosses and trees, are omitted.

For those who possess a fair or even an elementary knowledge of our mountain plants the book *par excellence* to bring along on our outings is "Alpine Flora of the Canadian Rocky Mountains," by Stewardson Brown, with illustrations from water-color drawings and photographs by Mrs. C. Shaffer. This book is much more scientific

than the preceding, closely follows the natural system of Engler & Prantl in classification and yet is so clear, lucid and non-technical in the floral descriptions that it will prove of great value even to the general reader. There is a useful glossary, a good general key to the families of plants, and at the beginning of each family a key to the genera, which the layman as well as the student will find clear, concise and so easily applicable as to enable him to readily distinguish them. The Ferns, Horsetails, Club-mosses and trees are included, making a total of 437 species and varieties described, of which 300 occur in Oregon and Washington. Among these 437 species there are six introduced European plants, viz.: the Water-cress, European Stick-seed, Heal-all, Dandelion, Field Sow-thistle, and Ox-eye Daisy. Two others, Field Penny-cress and Cow Vetch, while undoubtedly introduced in most parts of North America, may possibly be indigenous in the region covered by this Flora. In all there are 161 species illustrated, of which 58 are in colors. Of these latter we cannot speak too highly. They are a delight to the general reader and a useful aid to the student, especially so to the beginner.

It is safe to say that not one of our veteran members can look upon the illustration of *Mimulus Lewisii* (Red Monkey-flower), which forms the frontispiece of this volume, without being carried back in memory to one or more of our annual outings from Mt. Baker, Washington, to Mt. Shasta, California, where the showy, rose-red flowers of this plant gave us such pleasure when met with in great masses on some moist slope during one of our side trips, or around the main camp where it was so frequently used as a table decoration.

Both of these books give good lists of common names which are a great aid to the lay reader and will prove very useful to the beginner in botany who is usually more or less discouraged by the formidable looking scientific names. As a matter of fact he will find after even one season's study that the latter are both more descriptive of and applicable to the plant than the so-called common names.

Since the inauguration of our local walks and short trips in 1908, the extent of territory annually covered in addition to our mountains, is so greatly increased that a book describing both sub-alpine and lowland plants, has become a desideratum. This want has been happily supplied only in the present year by the publication of "Field Book of Western Wild Flowers," a handsome 16mo. pocket volume of 616 pages, the authors being Miss Margaret Armstrong and Prof. J. J. Thornber. This long-desired book takes the place in the Pacific States

that has been so admirably filled by Mr. Schuyler Matthews' "Field Book of American Wild Flowers" in the Northeastern States.

It only weighs 17 oz. and can be conveniently carried in the pocket while on our local walks and annual outings. There are 500 excellent illustrations in black and white and 48 beautiful plates in color, and the book is prefaced with a useful key to the families. The descriptions are given in such clear and non-technical language that a glossary is unnecessary. The Cryptograms (Ferns, Horsetails, Club-mosses, etc.) are omitted. The number of plants described is 609, while a score more are briefly referred to, making in all 629 species and varieties, of which 531 are herbaceous plants, 95 are shrubs and three, the Joshua Tree, California Buck-eye and Western Dogwood, are trees. Of the above 629 species, 320 occur in Oregon, of which 311 are indigenous plants and 10 viz.: Black Mustard, Scotch Broom, Alfilaria, Scarlet Pimpernel, Brass Buttons, Salsify, Blue Sailors, Common Sow-thistle, Dandelion and Smooth Hawksbeard, are introduced weeds.

The book contains well selected common names for all the species described, thus greatly enhancing its value to the beginner and the general reader. That authorities are not always unanimous in the use of common names is evidenced in a few cases such as Arrowhead for *Sagitharia Latofolia,* a plant that is known throughout the Northwest as Wapato; the name Nigger-babies for *Sanicula bipinnatifida,* is commonly applied to *Asarum caudatum* in Oregon; the name White Sage for *Ramona polystachya,* is used in Oregon for *Eurotia lanata;* and the name Greasewood for *Adenostoma fasciculatum,* is used in the Northwest for *Sarcobatus vermiculatus,* but these instances are exceptional.

The index is unusually good and has the common and scientific names under one head, an arrangement that we wish some more pretentious volumes had followed.

As an instance that authorities are not entirely unanimous regarding the color of flowers, Mrs. Henshaw's book refers to the flowers of the Glandular False-heather as "cream-colored"—and though the specific description in Professor Brown's book does not directly state the color of the flowers I would infer from the fact that he gives "White False-heather" as the common name that he would class them as "white" or "whitish." As a matter of fact in the 27 years that we have been familiar with it we have never ounce found the flowers either white or cream-colored in our territory. They are pale greenish to pale yellowish-green, and we have heard some of our members refer to it as "Green Heather."

It might be well right here to caution the beginner that all flowers have a tendency to vary in color, and that a large number of species with brightly colored flowers will occasionally produce individuals with white flowers. Noticeable examples of this in Oregon are the Purple Flag, Calypso, Fireweed, Spreading Phlox, some Polemoniums, Phacelias, Lungworts, and the Mountain Painted-cup. Even the Red-flowered Currant whose showy rose-pink to red blossoms make our western woodlands so attractive in early spring is occasionally found with pure white flowers.

"Come, heart, where hill is heaped upon hill;
For these the mystical brotherhood
Of sun and moon and hollow and wood
And river and stream work out their will."

—William Butler Yeats.

Mountaineering Activities of 1915

By F. H. MacNeil.

The summer of 1915 saw more mountain climbing than ever before in the history of the sport on this continent. The club camps, generally speaking, were crowded, and the national parks of the West were more largely patronized than at any time since their establishment. Professional guides on the western mountains never before conducted so many parties to the summits.

The one big reason for this probably was the Panama-Pacific Exposition at San Francisco. Thousands of eastern tourists, many of whom had never been in the mountains before, came west with the intention of "doing" the fairs and this side of the continent thoroughly, devoting the summer to their holidays. The three principal Pacific Coast encampments, that of the Sierra in the Yosemite, the Mountaineers at Mt. Rainier, and the Mazamas at Mt. Shasta, give ample proof of this statement. At all of these camps, large numbers of eastern novices registered and made their first ascents with the more seasoned mountaineers. In addition to this, the registration boxes of all the more commonly climbed western summits show the names of many climbers from the far East.

The war in Europe was a secondary condition. Many tourists who go to Europe each year, and many of the eastern mountaineers who, although veterans of the Alps, had never been in the American mountains, saw the West for the first time.

Mts. Hood and Rainier, Cascade volcanic peaks, the former in Oregon, the latter in the Washington national park, had the largest number of climbers in their history. Exact figures on Rainier were not obtainable, but over 400 persons made the summit. On Hood there were over 550 climbers during the season. A new record for Shasta was established, with over 175 climbers.

The camp of the Sierra was the largest, and its activities were most extensive. A permanent camp was established in Tuolumne Meadows, in the high Sierra, 20 miles northeast of the Yosemite. The camp was opened July 1 and continued until the end of September. Approximately 700 persons registered, the majority of whom were members of the various mountaineering clubs.

The European conflict caused one 1915 camp to be permanently postponed. Members of the British Columbia Mountaineering Club had planned an outing at Mt. Baker, in Washington. The majority of the executive officers and many other members had gone to the

war, however, so the outing did not take place. Instead, nine members made a three-day trip to the mountain, and all succeeded in reaching the summit. The war had its effect on the Alpine Club of Canada camp at Ptarmigan Valley, in lessening the attendance. The camp was dedicated to the members who were absent at the front.

Only two fatalities occurred in the 1915 season, and neither was in a club camp. Both were at Mt. Rainier. During the passage of Gibraltar, a man slipped from the ledge and fell a short distance to the rocks below. Another was killed in the Nisqually glacier ice caves when a huge mass of ice fell from the cave roof. This man was unaccompanied by a guide to warn him of his danger.

The season was distinguished by the many new mountaineering ventures undertaken. Dr. W. E. Stone, president of Purdue University, with Mrs. Stone and a party, made seven first ascents in the southern Selkirks. Mt. Fitzhugh in northern Canada was first ascended by Professor Holway and Dr. Gilmour, and Miss Jobe and a party of Canadian Alpiners went to within 100 feet of the summit of Mt. Alexander McKenzie in the far northern country, as yet unconquered.

It also remained for an eastern climber to make the first ascent for the season of Mt. Rainier. LeRoy Jeffers of New York, a member of the Appalachian Mountain Club, the Sierras and the American Alpine Club, made Rainier on June 16. He was alone, making the exploit all the more noteworthy.

Elijah Coalman, south side guide on Mt. Hood and an old-time member of the Mazamas, resided on the summit, 11,225 feet in altitude, for 70 consecutive days while engaged in work for the government. He erected a new observatory station there. Charles A. Warner of Portland, desiring to qualify for membership in the Mazamas, on March 11, accompanied by Coalman, climbed Hood from the south side, by far the earliest ascent ever recorded of this peak. Two small parties also made first ascents of Rooster Rock, 300 feet high, an overhanging needle rock formation with smooth perpendicular sides, last summer. Rooster Rock is in the Oregon Cascades along the Columbia river.

The Sierra camp was so located that it gave easy access to the more remote regions of the Yosemite, and this accounts largely for the great success of the outing. From the Sierra camp, ascents of the following peaks were made: Ritter, 13,156 feet; Lyell, 13,090 feet; Kiop, 12,723 feet; Kuna, 12,951 feet; Parker, 12,850 feet; Wood, 12,663 feet; Gibbs, 12,700 feet; Dana, 13,050 feet; Conness, 12,556 feet; North, 12,256 feet; Ragged, 10,858 feet; Hoffman, 10,921 feet;

[illegible] 10,848 feet; [illegible]

[illegible] Sierra [illegible] the course of the John Muir trail, a high mountain route between Tuolumne and Mt. Whitney. The trail will be one of the great mountain paths of the world when completed. It traverses the crest of the Sierra Nevada for more than 200 miles. Work was started on the trail last summer.

The Sierra Club during the summer also erected in Tuolumne Meadows the Parsons Memorial Lodge. The club owns a quarter section in the meadows, including the famous soda springs, and its [illegible] building, 40 by 24 feet in dimensions, is to serve as its high mountain headquarters.

The Mountaineers of Seattle and Tacoma, Wash., made Rainier, 14,363 feet high, the objective of their summer camp. The three weeks were devoted to a trip completely around Rainier and across the vast glacier fields. Ninety-one members of the club and visitors made the trip, and with cooks and packers the party numbered 103 persons. One ascent of Rainier was made, this from the northeast side by Emmons and Winthrop glaciers, with Camp Curtis the site of bivouac on the first night of the climb. The entire climbing party, numbering 57 people, reached Columbia Crest.

Mt. Shuksan, an extremely rugged and beautiful peak of 9038 feet, situated 10 miles northeast of Mt. Baker, was attempted by a small party of Mountaineers last summer. Not over six men have ever climbed it, and the mountain is one of which very little is known. The 1916 outing is to be at Mt. Baker, and a scouting party of two, Messrs. Frank G. Pugsley and E. W. Harrison, were in the region for two weeks. Bad weather conditions prevented a successful Shuksan climb, and glacier conditions on Baker were such as to prevent a successful ascent, although the two men went to within 300 feet of the top.

The Ptarmigan camp of the Alpine Club of Canada was in the Ptarmigan Lake Valley, north of Laggan in the Selkirks. The chief peaks climbed from the camp were Douglas, Ptarmigan, Pika, Richardson and Redoubt, and just 100 persons were under canvas in the camp. All members climbed, some more, some less, depending upon qualifications and the varying expeditions. No accidents of even the most trivial nature occurred.

The annual outing of the Colorado Mountain Club was held from August 9 to 21 in the Clear Creek basin, just east of the continental divide and at the base of Grays Peak, 14,341 feet in altitude, and Torreys Peak, 14,336 feet. Half a dozen peaks exceeding 13,000

feet were scaled, and as a climax the last two days were spent in climbing Grays and Torreys Peaks and Mts. Edwards and McClellan, all over 14,000 feet. From temporary camp at timber line, a party of 25 mountaineers accomplished the ascent of these four peaks in 12 hours. Perhaps nowhere else in the United States would it be possible to make the ascent of four peaks of this height in one day. Seventy-five persons registered during the two weeks. The first two peaks mentioned were the official qualifying mountains, and 45 people made one or both of these ascents.

The activities of the Appalachian Mountain club last throughout the year. Last January, 37 persons were at Fitzwilliam in southern New Hampshire, and 30 climbed Mt. Monadnock. In February, the regular snow shoe party spent ten days in the heart of the White mountains and half a dozen ascents, including Mt. Washington, were made. There were 110 persons in the party.

The August camp of two weeks was in the Dixville Notch country, a wild region 40 miles north of the White Mountains and far removed from ordinary travel lines. The entire time was spent on the mountain trails of the vicinity. The fall excursion made headquarters at Interbrook Lodge, a fine climbing center in the heart of the Adirondack mountains of New York. Mt. Marcy, the highest peak, and many others, were climbed, and some difficult rock ascents were negotiated. The club had numerous other excursions during the year.

The Prairie Club of Chicago, while not essentially a mountaineering organization, has a western outing each year. This year a party of nine was sent to the Mesa Verde National Park and San Juan mountains in southwestern Colorado. One week was spent in exploring the canyons of the Mesa, where the cliff dwellings are located, and the second week in the vicinity of Ouray.

Here, seven of the party climbed Mt. Sneffles, 14,143 feet, and two reached the summit of Uncompaghre, 14,306 feet, both difficult rock ascents. Numerous members of the Prairie Club were in the western camps of the Sierra, the Mazamas and the Mountaineers.

As mentioned above, the British Columbia Mountaineering Club outing was postponed. The Club usually does a good deal of original work, but owing to the war, there has been a lapse in British Columbia mountaineering. Twenty per cent of the most active members of this Club have gone to the front. The principal activity this season has been the continuation of the botanical survey of the mountains to the north of Vancouver.

The Mazama Club of Portland had its annual outing at Mt. Shasta. Extensive reviews of the work of the club there will be

found in other parts of this magazine. In addition, the Mazamas on July 4-5, took 238 persons to the summit of Mt. Hood, and numerous other semi-official climbs of Hood and other snow peaks of the Cascades were made. A party of seven reached the top of Mt. Jefferson, called the "Matterhorn of America," because of its exceedingly difficult pinnacle. This was the largest crowd that ever reached the top of Jefferson at one time.

The writer is indebted to the following persons for the data included in this article: Marion Randall Parsons, The Sierra Club, Berkeley, Cal.; J. H. Weer, Tacoma, and Frank Pugsley, Seattle, The Mountaineers; S. H. Mitchell, secretary-treasurer The Alpine Club of Canada, Sidney, B. C.; George C. Barnard, The Colorado Mountain Club, Denver, Colo.; Allen H. Bent, corresponding secretary Appalacian Mountain Club, Boston, Mass.; Sarah M. Farley, The Prairie Club, Chicago, Ill.; and W. J. Gray, director the British Columbia Mountaineering Club, Vancouver, B. C.

"See in the evening glow,
How sharp the silver spear-heads charge
When Alp meets Heaven in snow."
—Browning.

An Ascent of Haleakala

By Margaret McLennan.

Haleakala, the largest extinct crater in the world, is situated on Maui Island, one of the largest of the Hawaiian group in the mid-Pacific Ocean. The highest point of its rim rises 10,032 feet above sea level, while from the edge of the great bowl, 20 miles in circumference, the walls drop almost sheer to a cinder-strewn floor half a mile or more below. The name Haleakala means "House of the Sun."

The summit of this volcano mountain is well above the usual cloud belt, and from its top, the island below spreads out like a great colored map. In the distance, more than 100 miles to the south, can be seen the two snow-capped mountains of Mauna Loa and Mauna Kea, on Hawaii, the largest island by far of the group. Nearly always the curl of gray smoke rising from Makuaweoweo, the active crater on the summit of Mauna Loa, is visible.

There are two great gaps in the crater of Halekala, one on the north and the other on the south, through which the last lava flows escaped to the sea. For more than 300 years, native history informs us, there has been no volcanic action and the forces which created this huge monument are supposed by scientists to be dead.

The trip to Haleakala of which party the writer was a member, was made on New Year's eve and the two days following. Although over a hundred started from Honolulu, on Oahu, different parties climbed from different sides, and our group of less than 20 was the only one to actually reach the highest point. The party from the south side, ascending through Kaupo Gap, entered this notch directly onto the crater floor.

The trip cannot be described as one of typical Mazama fashion, The party left Honolulu in the afternoon of December 31 on the good ship "Claudine." Our number of over a hundred crowded the boat to capacity. We who were lucky enough to get staterooms settled ourselves therein as our neighbors had settled themselves outside on deck with their mattresses against the cabin doors.

Soon after dinner *mal-de-mer* attacked more than half of the crowd even as mountain sickness attacked some of them hours later. However one group was brave enough to bring forth ukuleles and before long all were singing and making merry.

The cloud effects were beautiful and the moonlight so bright that we could discern the outline of mountains on the different islands we passed. As the night wore on, merriment grew apace. By midnight everyone was astir. When 1915 was ushered in, revelry reigned

on board and ashore, for the ship's engines were shut down and we found we were drifting just outside of Lahaina, a town on the south side of Maui. Here the street lights and wonderful noises brought a return from the ship in whistle toots and cheering that lasted for half an hour and seemed to match in volume the town racket.

Not before 4 o'clock were all the passengers in slumberland. The south side climbers were aroused at 6 instead of 8 o'clock in the morning as they had expected. The officers and crew were unhappy from having to make the extra holiday trip, so it was with short grace that members of this expedition disembarked in the small boats. The "Claudine" hastily steamed away, leaving the unfortunates at the beginning of an arduous trip over an almost untried route to the summit.

We soon had troubles of our own, however, for as we passed through the channel between the islands of Maui and Molokai, the sea became very rough and our little vessel rolled and tossed as though she too resented being taken on a holiday. We made several stops at points along the way and some of the scenery was indeed picturesque.

Our party had dwindled to 20 when we reached Kahululi, and we were soon on the way. Automobiles, first over splendid roads, and later over ways that were just the opposite, brought us to Idlewilde and lunch. Then early in the afternoon we started for the summit on horses and mules of various hues and dimensions.

To one accustomed to mountain climbing the ascent was not at all difficult. The animals, however, seemed to notice the increasing altitude and traveled very slowly. Colder and colder it became, and when we reached the top, every available garment was in use.

We were glad to be on our feet again, and in spite of the nipping wind made the most of our few minutes before sunset to scamper from rock to ledge for the different points of outlook. Our short period of view that evening justified the exertions of the twenty-four hours before.

Clouds were filling the crater, great billowing masses that sailed grandly up and tumbled over the rim, one after another. As they fell over each other, one wondered how many that immense crater would hold.

Far below black masses of fine scrap rock, shaped like ant hills, constituted the formerly active vents within the great crater.

To the south the summits of Hawaii, Mauna Loa and Mauna Kea, each one over 13,000 feet high, were plainly visible. Mokuaweoweo, the crater on Mauna Loa, was then very active and much smoke and steam rose into the clear air.

As the great red sun ball sank lower, over on the other side of the crater the clouds drifted in rapidly through the Kaupo Gap notch, the objective of our fellow climbers, and we wondered if they had reached that point yet. Later we learned that they were already safely encamped inside the crater. Immediately after the sun dropped into the sea, we noticed a decided downward change in temperature, and hurried to the rest house.

The anticipated comforts here were disappointing. There was an open fire in one end of the building. The smoke refused to go up the chimney and there was no other opening for it to leave the building. Outside the wind was blowing harder than ever and small particles of rock filled the air so that we could hardly open our eyes. Even in the few protected corners we could not find shelter, for not enough blankets had been brought along to keep all warm through the night.

One of the girls had brought a thermos bottle of hot chocolate, and how good it tasted! Our other supplies were meagre indeed. However we managed to get through the night in spite of the many discomforts, grumblings and suppressed giggles (for there were those in the party who had a very convenient sense of humor), and everyone was glad to know when the morning hours were near.

The wind was still blowing as we went out to look for the morning star, but the stone dust seemed to have settled and we were able to keep our eyes open. In the crater below, darkness and quiet reigned, while beyond the rim the gray clouds were slowly shifting and taking their positions in preparation for the grand review by Aurora.

The wind ceased blowing and a remarkable stillness was noticeable. Very slowly the yellow rays began streaking up out of the east. Soon the sea of clouds was dyed in a brightness of undefinable colors that seemed to seep up from underneath. We watched the scene in silence for many minutes until the sun had climbed high above the horizon. As we turned away the mountain top was bathed in the splendid warmth and brightness, but not a ray had reached the inside of the crater.

The return trip was a delightful one because of the beautiful panorama of West Maui before us all the way. Weather conditions were ideal. At Idlewilde again we met the fellow travelers from the south side. Those who had secured horses were able to make the trip through the Gap and across the crater, but they did not attempt the summit. Improper equipment kept others from even getting that far.

From Miss Ethel A. Keating, the author received the following account of the south side trip:

It had been the intention of the members of this party to hike the entire distance, but there were a few mounts available, and in time two horses and a friendly looking mule were obtained. Two days' rations were distributed at Kaupo.

The climb confronting them was of 11 miles, rising from sea level up to 8,000 feet, the crater floor level. The slope was so gentle and misleading that many attempted taking it on "high," and this impulse, with the influence of a spring of delicious water near the start, was the snare that consummated the downfall of several ambitious hikers.

Hour after hour the climb up this "gentle" slope continued and the fortunate ones on horseback passed many of the hikers, strong men even, who had been compelled to drop out after a few miles of tramping. At first a green grassy path, the trail resolved into a narrow earthen road and terminated in loose lava rock that rolled and slipped under the horses' feet.

The trail ended eventually after the traverse of a very steep ridge had left the travelers fairly inside the crater. Here Dr. Aiken, a resident of Maui, and his party of four met the new arrivals. Dr. Aiken, who is familiar with every phase of Haleakala, had encamped in "The Bubble," a lava formation, for a week. One of the women of his party had killed a young goat the day before and its meat was the interesting feature of this mountain-top supper.

At the Trail and Mountain Club's camp the goat meat was toasted over the camp fire on the ends of sticks. The meat was a veritable life-saver to the climbers.

The night was spent in "The Bubble," a blow-hole in the lava, forming a cave 15 feet wide, 25 feet long and four feet high. The wind swept through the crater with terrific velocity and the cold was intense. One entered "The Bubble" by sitting on the edge of the aperture, two feet in diameter (with rough edges), and dropping in. Inside "The Bubble" it was delightfully warm, and the fire, fed with wood that had been packed along the trail, was soon started. A short time later the climbers slept in their tracks. Two other climbing parties passed during the night, and stopped to shout greetings through the opening. Sleet was falling at the Trail and Mountain Club camp, they reported, and the unfortunates there had to remain awake to keep from freezing to death.

At 11 o'clock the next day, the party left "The Bubble" for the other side of the crater, traversing enroute the "low place." "The

Bubble" is in the center of the crater, and the route was on across to the north gap, through which the descent was later made.

The trail everywhere was over cinders and lava in hills and cones of red and black. These were dotted sometimes profusely with the Silver Sword, a plant of the century plant specie, peculiar to the Himalaya mountains and the crater of Haleakala, the only two places in the world that it has been found. Growing, it is wondrously lovely, a live gleaming silver with a heart of glowing pink and green. Once pulled, the silver becomes leaden, and the brilliant colors quickly fade. The plants were irresistible, and the party collected many of them.

Going on, the trail led through "Dante's Inferno," a riot of fused rock formations, with the blue sky and cloud banks topping off the indescribable colorings. A short distance beyond, the trail leads to the Bottomless Pit, a spill of lava forming a little ledge overhanging a still, gaping darkness. No answer came from the rocks hurled into this hole, and bottom has never been reached in attempts to sound it.

The trail followed was one used in the old days by the Hawaiian cross-country runners or messengers. On either side are small monuments of stone, their method of recording the trip, and to this day any Hawaiian passing along adds a stone in accordance with some belief or superstition. One mound was pointed out as having been erected by one of the warriors of Kamehameha I for the protection of the king during one of the numerous battles.

Dr. Aiken knew of a place called the "Big Cave," very rarely visited by climbers of Haleakala. The party dismounted, and crawling through a little grassy opening, the immense cavern was found. Its exploration was sensational, as the trail was a narrow one in the pitchy darkness, leading along ledges over gulfs of unknown depth. The cave was accessible for only 300 feet, and then all returned to its mouth and daylight again.

Soon they reached the north boundary. The low place had been passed, and after lunch came the ascent of nearly 2,000 feet half way up the crater wall to the gap from where one sees nearly the entire coast line of Maui. The descent of eight miles to Idlewilde followed, with the biting wind at their backs, pushing the climbers downward. Along this trail they found a number of exhausted climbers of the other parties, some on the verge of collapse. Night and day at Dr. Aiken's mountain home, Idlewilde, brought rest and the following afternoon the remaining few miles, over splendid roads, were negotiated, and soon the reunited party was steaming back to Honolulu again on the "Claudine."

Soldiers of the Common Good

By Frank Branch Riley

Not all great public improvements are the result of government initiative only. Frequently the hero in the first chapter, at least, of the story of the Bridge, Irrigation Project, Civic Center, Playground, or Highway, is the private citizen in the gripping role of "booster" and philanthropist.

And not all fine things designed for the greater good of the greatest number, and pointed to with pride by enthusiastic communities, had, while building, the comfort and support, or anything more than the reluctant consent, of "all the people." The altruist, with a determination to do something for his fellow citizens, has to convince both the constitutionally conservative officials and the unimaginative rank and file that he is sane, really unselfish and has a plan worth while.

Sometimes he is laughed at, scoffed at, called an "impractical dreamer," or "dangerous meddler." And there is a class, suspicious, persistently incredulous and unable to understand a passion for doing something for everybody without compensation, which seeks to discover in any apparent show of public spirit, the taint of selfish interest.

But usually, and fortunately often while he still lives, the booster enjoys his reward in the gratitude of a benefited people; and he is revered as a progressive, and a public benefactor.

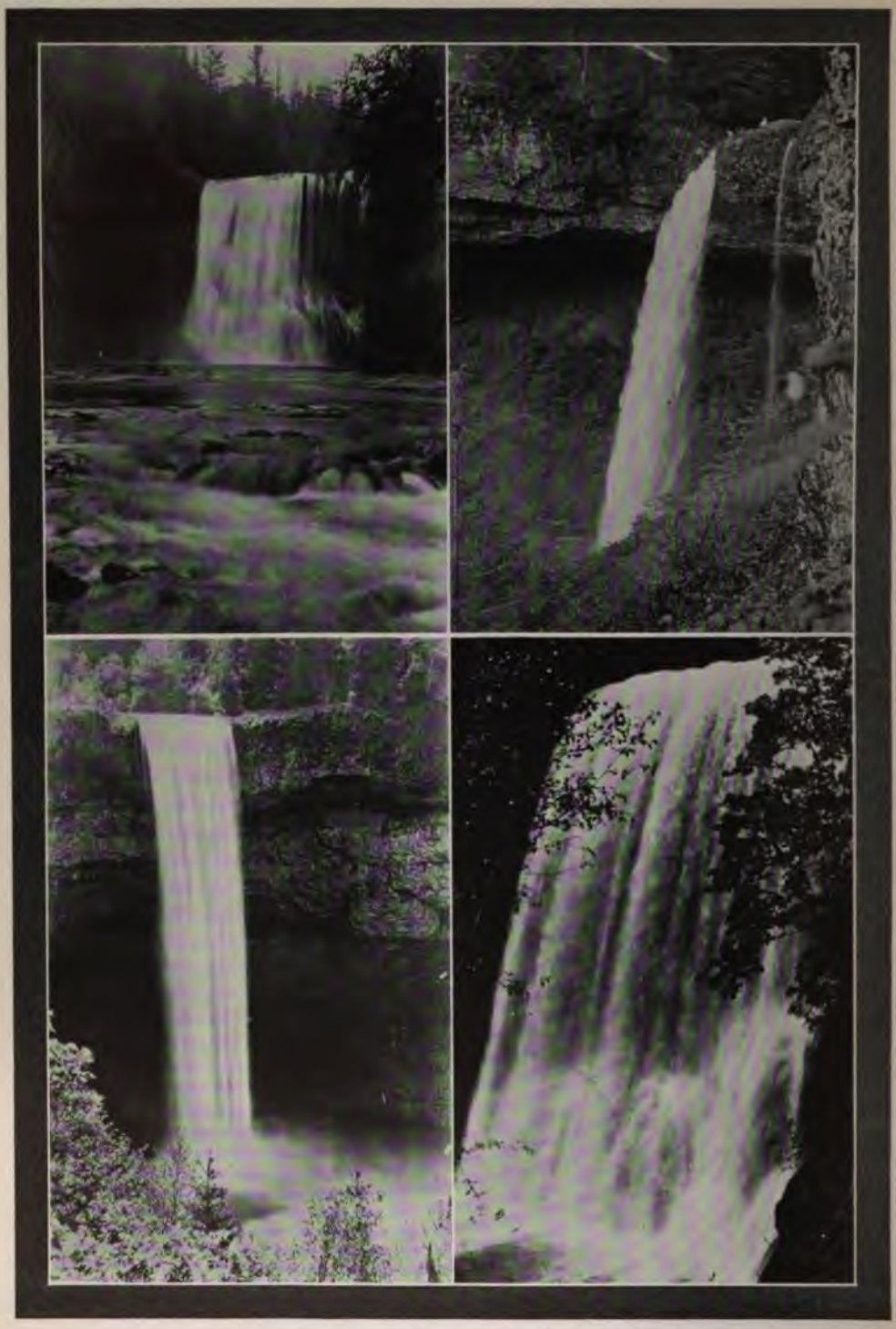
It is a remarkable coincidence that just when the public need has grown to irksome proportions, and in our lethargy we have agreed that what cannot be cured must be endured, a man or a woman, or a group of them rises up, sometimes from unexpected places, to give unreservedly of time and money and enthusiasm; and to point the way and lead, or, if needs be, drive us, out of an intolerable situation.

With the triumph of the motor-driven vehicle and its imperative call for more and better roads, a century-old desire flamed with new ardor in the hearts of the people of the Columbia basin.

There had always been the asthetic desire and the industrial need of a way in and out of the titanic gorge through which the noblest of America's rivers sweeps majestically to the sea.

Shrieking locomotives carried transcontinental trains of closely-housed passengers headlong through the canyon; voyagers on steamboats in the middle of the wide river, saw far-flung panoramas only of lofty palisades and gleaming cataracts which challenged a closer

"Soldiers of the Common Good." (See Mr. Riley's article.) Upper left—Simon Benson. Upper right—Samuel Hill. Middle—John B. Yeon, County Roadmaster. Lower left—Samuel C. Lancaster, Highway Engineer. Lower right—Amos S. Benson.



The little known, but beautiful, series of falls on Silver Creek, Marion County, Oregon, visited in May by Mazamas. Upper left (Photo by J. C. Bush)—The Upper Fall on the North Fork. Upper right (Photo by R. J. Davidson)—Lower Fall (146 feet) on North Fork. Lower photographs (J. C. Bush) are of upper and lower falls on South Fork of Silver Creek.

touch. But there was no intimate motor-road to admit the tourist pilgrim to the inner shrine of Columbia's temples.

Of money to build the Highway, there had long been enough; living somewhere, was the engineer. But where was the practical dreamer?

One day he came in the buoyant, magnetic personality of Samuel Hill. A man of restless energy, of irresistible enthusiasm, ardent nature-lover, successful business man, world traveler, internationally-known road builder, he was ideally equipped to play the dominant role in the prologue to the Drama of the Highway.

In impassioned lectures, illustrated with screen pictures of rivers and mountains, he drove home a new appreciation of Oregon's surpassing scenic assets.

He built public highways at his own expense and presented them to the people; and, sometimes, he was host to entire legislative assemblies on pleasurable journeys to inspect them. He financed road-meetings; pleaded and harrangued; and headed subscription lists of private funds for public improvements, when public funds were scant.

He found one of the few living highway engineers, Samuel C. Lancaster, then of Tennessee; took him to Europe and together they studied old-world bridges and mountain boulevards. Returning to Portland, with Major Henry L. Bowlby, another great road-builder and the then State Highway Engineer of Oregon, they planned a Highway through the Grand Canyon of the Columbia of European permanence and excellence.

If Samuel C. Lancaster had not been a great engineer, he would have been a poet. Combined in him, paradoxically, was a genius for mathematics and a romantic appreciation of every beautiful thing in nature. His master-road of five per cent grades progressing in grand sweeps up over bold palisades, folding around mountain shoulders and fringing the river shore, has won the applause of technicians everywhere. And the artists who have beheld the succession of vistas and pictures which the road deftly reveals, exclaim that none but a painter could have devised the Highway.

Prominent Multnomah County taxpayers, by no means the least of the players in the Drama, rallied.

A young governor lent comfort and support and as much material aid as a then lack of State legislation permitted.

Local officials were convinced. Prominent among these, Rufus C. Holman, native son and youngest of the Multnomah County Commissioners, worked heroically in the face of much doubt and criticism, fired with the spirit of a greater Oregon.

For the superintendence of the construction of the great Highway, and the county's new road system, there was needed a man of artistic impulse commingled with sound practical judgment. Providence only could have provided a citizen to meet all the requirements, and the activities of John B. Yeon read like a romance of Utopia.

As an Americanized Canadian logger of French antecedents, he had wrung from the Northwest forests a fortune. He built a million-dollar office building and was ready for rest and travel. He offered himself as County Road-master, stipulating he should receive no salary that more money might go into the Highway.

In all weathers, dawn found him in workingman's garb in the Columbia canyon at the head of an army of engineers, graders, wall and bridge builders. From his purse he supplied sudden or extraordinary needs of material and labor. Day after day, week after week, month after month, for now two years, with unhesitating sacrifice of personal convenience and private fortune, this adopted son of a grateful state has labored with almost sensational success.

Strung along the Highway, like jewels on a necklace are a series of beautiful mountain parks. Before greedy speculators could seize these for individual gain, another adopted son, a Norwegian, and likewise a logger to whose industry the timbered lands had responded in millions, had found and bought them. And then this man, Simon Benson, built trails and bridges in the beautiful spots and gave them all, unreservedly, to the city of Portland for the enjoyment of the people forever.

When road bonds went begging, he bought the issue; when tax levies fell short, his funds were ready. He financed road campaigns; he founded and endowed a long needed polytechnic school in his city, Portland. At the principal street corners he placed drinking fountains, and it is not an exaggeration to say that thousands of his fellow citizens each day literally bow to him in gratitude at these cool bubbling springs of mountain water.

Perhaps the most remarkable thing about Simon Benson is his son, Amos. According to all the traditions, the plots of melodramas and the six-best-sellers, the son of a rich philanthropist should be a sulker who watches with rage the foolish dissipation of that which might some day be his inheritance. But this scion, applauding each generous act of his father, waits impatiently for his next philanthropy.

Amos Benson has practically lived in the Columbia gorge since the great Highway was planned, contributing from his own purse as the need arose. He has served as a sort of co-road-master, negotiator

of rights of way and superintendent of trail making; all, of course, without compensation.

These two men, like John B. Yeon, are truly useful Americans, "hyphenated" indeed, but with a dependable patriotism, a passion for public service seldom excelled in the hearts of the native born.

The story of the road is illuminated by the lofty impulses of George Shepperd, a man of humble means, who gave to the people his "Shepherds Dell," perhaps the loveliest spot in the canyon.

The public service inspired other men, among them Julius L. Meier, who gave his enthusiasm and counsel, and a group of eloquent, dynamic citizens who gave unreservedly of their time and private funds in a campaign of education, resulting in the approval of a bond issue to provide funds for the hard surfacing of this and other trunk roads of Multnomah County.

Profoundly valuable as this great Columbia River Highway is as a material asset of the people of the West, and indeed of all the nation, not less priceless is it as an imperishable proof that in an age of individualism when selfish interest and private gain are the reputed elements of success, there may still be found in the crowd

"Tall men, sun-crowned, who live above the fog in public duty."

The Mountain

"Silent and calm, have you e'er scaled the height
Of some lone mountain peak, in heaven's sight?"

—Victor Hugo.

Topographic Mapping in the Pacific Northwest

By Lewis A. McArthur.

During the past two years progress has been made in topographic map work in Oregon and Washington, resulting in the publication of a number of sheets and the completion of the field work of many more. This work has been carried on by the United States Geological Survey and the United States Forest Service. Some additional work has been done by the Reclamation Service.

During 1914 and 1915 the Geological Survey published the following sheets: Boring, Oregon City and Pine, Oregon; and Ocosta, Hoquiam, Mount Baker, Malaga, Wenatchee and Mount Rainier National Park, Washington. In additiona, two excellent state maps on a scale of eight miles to an inch were issued of Oregon and Washington. The topographic maps may be bought in Portland for ten cents each.

Water-Supply Papers were issued for a number of streams in Oregon and Washington, each including large scale maps of the rivers in question, together with other interesting data. The Water-Supply Papers covering the various streams are as follows: No. 346, Clark Fork; No. 347, Snake River; No. 366, Snoqualmie, Sultan and Skykomish Rivers; No. 368, Wenatchee River; No. 348, Hood and Sandy Rivers; No. 349, Clackamas, Santiam and Middle Fork Willamette Rivers; No. 378, Middle Fork Willamette River and White River; No. 376, Chelan and Methow Rivers; No. 377 Spokane and John Day Rivers, and No. 379, Umpqua River. Two other Water-Supply Papers cover the quality of surface waters in Oregon and Washington, and while containing no detailed maps, they furnish considerable geological information of interest. Bulletins 556 and 557 contain information relative to elevations of permanent bench marks in Oregon and Washington respectively. All these Water-Supply Papers and Bulletins may be obtained free of charge from the Portland office of the Geological Survey in the Couch Building.

Two guide books with many excellent maps have been issued covering areas in the Pacific Northwest. The first is Bulletin 611, covering the Northern Pacific, and the second, Bulletin 614, the Shasta Route. These books may be obtained from the Superintendent of Documents at Washington, for $1 each.

During 1914 topographic field work was completed for a number of new sheets, and of these, advance sheets have been published, but

not the final engraved sheets. The quadrangles are as follows: Diamond Lake, Albany, Cazadero, Arlington, Condon, Tualatin, and Willamette Valley sheets 7, 8 and 9 in Oregon, and Chehalis, Coyote Rapids, Priest Rapids, Pasco and Eltopia in Washington. During 1915 field work on additional sheets was completed, and advance sheets will be available next spring. These additional areas include Kerby, Hillsboro and Salem, Oregon, and Prosser and Wallula in Washington. It will interest Mazamas to know that considerable progress was made on the Mount St. Helens sheet, which was very nearly finished. This map will probably be finished next summer, and also some sheets in the southeast part of Washington and in the Cascade Range in Oregon. The Mazamas should be particularly interested in getting additional topographic work done in the Cascade Range region.

During the past summer the Forest Service practically completed a topographic map of the unsurveyed part of the Columbia National Forest in Skamania County, Washington. This map will be highly useful when drawn, as the area is one of interest on account of its scenic features. The map is being made by the photo-topographic process, in which photographs are taken from various high points, the camera being especially devised to register angles and other governing factors. The maps are made in the office from the pictures. This plan is said to be a great labor saving process.

A fine topographic map has been made of the southern slopes of the Wallowa Mountains in the Minam National Forest, and the Forest Service has issued a set of eight atlas sheets in colors, on a scale of one mile to an inch. These maps are not for distribution, but may be inspected at the office of the Forest Service in Portland. A topographic map of the Wallowa National Forest has been completed and atlas sheets will be published next year. Considerable topography has been taken by the Forest Service in the Deschutes basin and in scattered parts of the state, all of which is available for inspection, but not for distribution. During the year the Forest Service has issued a number of excellent black and white maps of Oregon and Washington forests which may be had free of charge.

Mountain Elevations

During the past few years the Geological Survey and the Coast and Geodetic Survey have been carrying on additional level work and triangulation in Oregon and Washington, with the result that a number of elvations of prominent points have been more accurately determined than before. Believing that Mazamas would be interested in the latest and best determinations of elevations, the editor has requested Mr. Lewis A. McArthur, of the Oregon Geographic Board, to prepare such a list, which is herewith submitted:

Point	Elevation	Determined by
Mount Rainier	14,408	USGS
Mount Shasta	14,162	USC&GS
Mount Adams	12,307	USGS
Mount Hood	11,225	USC&GS
Mount Baker	10,750	USGS
Mount Jefferson	10,522	USC&GS
Lassen Peak	10,466	USC&GS
South Sister	10,352	USC&GS
North Sister	10,067	USC&GS
Middle Sister	10,038	USC&GS
Mount St. Helens	9,697	USC&GS
Mount McLoughlin	9,491	USC&GS
Mount Thielsen	9,178	USGS
Mount Scott	8,938	USGS
Diamond Peak	8,792	USC&GS
Mount Bailey	8,356	USGS
Three-Fingered Jack	7,792	USC&GS
Mount Washington	7,769	USC&GS
Cowhorn	7,666	USGS
Mount Ashland	7,535	USC&GS
Sawtooth	7,305	USGS
Crater Lake Surface	6,177	USGS
Marys Peak	4,097	USC&GS
Larch Mountain	4,045	USGS
Chehalem Mountains	1,447	USGS
Council Crest	1,073	USGS

The elevations furnished by the USC&GS may be found in Special Publication No. 13, The California-Washington Arc. Most of the USGS elevations have been taken from topographic sheets. In a number of instances elevations determined by the Coast and Geodetic Survey are more reliable than elevations published on sheets of the Geological Survey atlas that were surveyed a number of years ago.

Mr. C. B. Aitchison has made a barometric determination of Eagle Cap in the Wallowa Mountains, resulting in an elevation of 9675 feet. This figure is probably within 25 feet of the actual elevation, as it was very carefully made.

Mr. S. C. Lancaster made a determination of the height of the crest of Multnomah Falls above the pavement at the highway crossing below the falls and found the elevation of the crest to be 607 feet above the highway.

The Owl Club at St. Helens

By C. H. Sholes.

Perhaps one of the most vivid recollections carried away from the St. Helens outing in 1908 centers around the Owl Club, wherein President Frank B. Riley was the principal actor. Song, story and recitation delighted the camp-fires, and long after the last outsider had retired to his bed of fragrant boughs, Riley and a few kindred enthusiasts sang the requiem of the dying embers, and peopled the dreams of fitful sleepers with desperadoes bent on murder! The retort of one was the following verses:

Oh, the mountain did enchant us,
And the days and nights still haunt us,
  Where Booth and Riley played;
But they've vanished from the lake-shore,
And the woods will never wake more
  As when Booth and Riley played.

Joy and health our outing brought us,
Much of wisdom it had taught us,
  Till Booth and Riley played;
Then we from springs of humor quaffed,
While the mountain roared and laughed,
  As Booth and Riley played.

We rehearsed our mountain dramas
For the cheer of all Mazamas,
  And Booth and Riley played.
Though rainy days were uneventful,
There always was a tentful
  When Booth and Riley played.

Indian came and airy sprite,
Hither drawn by glare of light,
  Where Booth and Riley played.
Solemn thrills of wonder shook them,
And their native calm forsook them
  While Booth and Riley played.

Seated 'mong the pillared pines,
Whose spices fired our hearts like wines,
  We watched them in the glade;
Common sense was lost in wonder,
And city encores rose to thunder
  When those tragedians played.

When we came to end our camping,
And resume our homeward tramping,
  Our hearts were sore dismayed;
For we knew it meant less pleasure,
And toil and stress in greater measure,
  Than when Booth and Riley played.

But the crisis came toward morning,
When the fading stars gave warning
  To that Booth and Riley gang;
Through the gloom came daylight shyly,
And great Booth slept, but Owl Club Riley
  Sang—
    And sang—
      And sang!

Mazama Outing for 1916

By L. E. Anderson.

For their twenty-third annual outing the Mazamas will visit the Three Sisters, Oregon, about the first of August, 1916. It is planned to establish camp on a beautiful site on the south side of the Obsidian Cliff a short distance below the Obsodian Falls. This stream bursts in full force from the mountain-side furnishing the purest of water for camp use.

The Three Sisters furnish many attractions of unusual interest. The immense fresh lava streams giving indications of recent volcanic action make it ideal for the student of geology. Many varieties of flowers adorn and beautify the landscape in every direction round about the camp site and furnish interest for the botanist. The Sisters as well as two or three other peaks in the vicinity will furnish climbing for the enthusiastic hikers. The North Sister especially is of real alpine interest and has been ascended by very few people.

Some will no doubt make the ascent of Mount Washington, about fifteen miles away, and easily accessible.

The route up the McKenzie River is very beautiful and those who wish may visit the Belknap Hot Springs which are passed on the way.

The prospectus will be issued early in the year, giving detailed information which will probably be available in the near future. This is being worked out now and the twenty-third annual outing may be expected to be fully equal to the anticipation of all.

Mazama Organization for the Year 1916-1917

OFFICERS

FRANK BRANCH RILEY (510 Chamber of Commerce Bldg., Portland)..*President*
GEORGE X. RIDDELL (Hill Hotel, Portland).....*First Vice-President*
C. V. LUTHER (East 34th and Belmont Streets, Portland).*Second Vice-President*
E. C. SAMMONS (69 East 18th Street, Portland).....*Corresponding Secretary*
MISS BEULAH F. MILLER (629 East Ash Street, Portland)...*Recording Secretary*
MISS HARRIET E. MONROE (1431 E. Salmon St., Portland)...*Financial Secretary*
MISS MARY C. HENTHORNE (Library Association, Portland).....*Historian*
R. W. AYER (131 East 19th Street, Portland).....*Treasurer*
L. E. ANDERSON (213 N. W. Bank Bldg., Portland).*Chairman Outing Committee*

COMMITTEES

Outing Committee—L. E. Anderson, Chairman; Miss Martha E. Nilsson, W. C. Yoran.

Publication Committee—E. C. Sammons, Chairman; Miss Mary C. Henthorne, F. H. MacNeil, Lewis A. McArthur.

House Committee—Mrs. Eleanor G. Sheldon, Chairman; Miss Gertrude Bide, Miss Nelle Crout, A. Boyd Williams, Arthur M. Churchill.

Local Walks Committee—W. P. Hardesty, Chairman; Miss Agnes G. Lawson, Miss Anna C. Dillinger, R. J. Davidson, P. G. Payton, W. W. Ross.

Membership Committee—H. H. Prouty, Chairman; Miss Pearl Ellis, R. L. Glisan, O. B. Ballou, F. W. Benefiel.

Entertainment Committee—F. P. Luetters, Chairman; Miss Nettie G. Richardson, Miss Elsie M. Silver, Miss Nellie Mae Dalcour, Frank I. Jones.

Educational Committee—Miss Edith Ellis, Chairman; Miss Harriett E. Monroe, L. F. Harza, Hart K. Smith, J. E. Bronaugh, John A. Lee.

Library Committee—Miss Mary C. Henthorne, Chairman; Miss Beulah F. Miller, Miss Mary E. Powell, A. K. Trenholme, R. M. Wilson.

In Memorium

John Muir

By Thos. J. Pilkington.

It was on Sierra Club outings that I met Mr. Muir. Of a personal and intimate nature, these meetings brought to me that which shall be a solace in all the years to come.

In a strictly limited way I am a hero worshipper, and in reading Mr. Muir's books, seeing, hearing, talking with him at various times and in various places there was ample cause for the feeling that became reverence for one of the purest souls that ever came to earth.

Scholar, scientist, writer, horticulturalist, explorer, nature-lover, inventor, conservationist, poet—he was all these and more. He has been likened unto Thoreau, and again to Jeremiah; he had the qualities that made Robert Burns so humanly lovable, and he surely had a touch of the Christ. He was the Saviour of so many things of vital import to the men of this day that the title fits him well.

He had intercourse with, and was honored by, many of the great ones of the world, and remained unspoiled for all that. So democratic was the native simplicity of his character that he never suppressed the humblest and least regarded of men. Rather, he sought the society of plain folk, delighting them with the treasures of his mind and heart.

To love the flowered meadows, the white silences of the uplands, the templed groves, the glacier-scarred domes; to be a lover of the out of doors—this was the open sesame to the regard of John Muir. Intellectual aloofness, professional dignity were foreign to him. He was a man and in his passing there was taken to a better land one of God's noblemen.

REPORT OF TREASURER FOR THE OFFICIAL YEAR, OCTOBER 5, 1914, TO OCTOBER 4, 1915.

Balance on hand October 5, 1914	$1566.70
Received by Treasurer during year	1560.07
Total	$3126.77
Disbursements by Treasurer, as hereinafter classified	$2276.87
Balance on hand October 4, 1915	$ 849.90

Distribution as follows—Receipts.

Yearly dues from members	$1053.00
Local walks dues collected on weekly outings	161.95
Profit on special Mt. Hood outing	95.17
Sale of keys to club rooms	42.00
Sale of Mazama pins	33.00
Sale of stationery and maps	9.95
Special contributions for banquet	12.25
Sale of back numbers of Mazama magazines	2.50
Telephone tolls refunded by members	2.85
Sale of old chairs	3.25
Donations to library	14.15
Donations by members for furnishing club rooms	130.00
Total receipts	$1560.07

(In addition to the cash donations for house furnishings (club rooms), various members purchased and contributed furniture to an estimated additional value of $60.00 to $75.00.)

In the following classification of disbursements, a very precise distribution to the different accounts has been difficult, because of the manner in which many bills are contracted, as one bill often contains a number of items for different purposes, and only one fund (the General Fund) is really handled by the Treasurer. The classification herein was made by the Treasurer to show the different sources of income and expenses.

Disbursements.

House Furnishings (Club Room Headquarters)

Rugs	$86.30	
Desks and tables	54.50	
Refinishing and repairing furniture	7.50	
Curtains, rods and burlap (in place)	39.00	
Chairs, parlor set, etc	88.40	
5 dozen folding chairs	75.00	
Revolving bookcase	7.00	
Miscellaneous items	3.35	
Shelving and cabinet work, etc	19.90	
Drayage in moving	5.50	
Total for house furnishings		$ 386.45
Room rent		250.00
Telephone exchange		51.85
Long distance telephone service		5.79
Telegrams		9.98
Library and educational		27.32
Albums and art work		9.00
Entertainment provided by Entertainment Committee as follows:		
Club room functions	$ 23.45	
Lectures	165.54	
Banquets, etc.	69.75	
Total for entertainment		258.74

(In the foregoing disbursements for "Entertainment," over $60.00 on account of lectures and over $20.00 on account of banquets were for affairs held in the latter part of prevoius official year.)

Letterheads, stamped envelopes, etc., for general use on club business		99.85
Miscellaneous stationery for general purposes		11.00
Stationery de lux (note paper and envelopes)		16.00
General business requiring stenographic (typewriting) work, mimeographing, etc.		48.36
Bookbinding		1.75
Expenses of 1914 election (incurred during fiscal year 1914)		23.35
Miscellaneous expenses connected with increasing membership		21.38
Local walks or outings, as follows:		
Schedules	$77.75	
Addressing, envelope printing and postage	58.45	
Typewriting and mimeographing letters	17.70	
Coffee, sugar and cream	46.75	
New equipment, repairs and materials	18.02	
"Scouting" (covering the clearing and marking of trails)	11.40	
Deficit on one trip and miscellaneous	1.45	
Total for local outings		231.22
Record books for mountain summits		2.25
Magazine publication for 1914:		
Net cost over advertising, paid from General Fund, as per editor's report	$237.76	
Additional amount properly chargeable taken from undistributed accounts	37.95	
Total for magazine		275.71
Deficit made up from Mt. Shasta outing		240.90
Miscellaneous bills for 1914 outings, presented and paid after winding up accounts		8.80
Ancient bill, account 1912 outing		1.65
Insurance on furniture and outing equipment		3.55
For keys to club rooms		35.00
Same for desk		.90
For Mazama pins		60.00
Expenses connected with purchasing, assembling and installing exhibit at Panama-Pacific International Exposition		119.91
U. S. maps (topographic, etc.)		8.50
Circular letter in re campaign for Larch Mountain Trail		16.00
Printing and postage expenses, account 1915 election		39.40
Miscellaneous unclassified expenditures		13.36
Grand total		$2276.87

The foregoing statement is correct.

WM. P. HARDESTY,
Treasurer.

Local Walks for the Year

By W. P. Hardesty.

The local walks or outings of the Mazamas have taken about the normal course for the year. There has been a larger proportion of week-end and two-day trips than usual. As heretofore, the year has been divided into three parts, being covered by the Winter Schedule, the Spring and Early Summer Schedule and the Fall Schedule, and there was an omission of official scheduled trips during the three Sundays taken up by the Annual Outing, and also for July 4th.

Among the more important outings were: The Seaside-Cannon Beach trip over Washington's Birthday; the Mt. Chinidere trip of May 22nd and 23rd; the Silver Creek Falls outing over Decoration Day; the Saddle Mountain expedition (near Astoria) on June 19th and 20th; and the trip to Neah-kah-nie, Arch Cape and Tillamook County beaches over Labor Day.

The Annual Trip to Mt. Hood was an immense affair, but was not handled by the Local Walks Committee, though fully heralded in the Spring and Summer Schedule.

The following table gives about all of the official scheduled trips for the year:

Date 1914	Time Consumed	Locality or Route	Attendance
Nov. 8....	½ Day.....	Linnton Boulevard	84
Nov. 15....	½ Day.....	Mt. Calvary-Patton Road.....	92
Nov. 22....	½ Day.....	Arlington Heights-Skyline Trail.....	61
Nov. 29....	½ Day.....	Terwilliger Blvd.-Slavin Road-Miller's Ferry Road	47
Dec. 6.....	½ Day.....	Oswego-Oregon City	59
Dec. 13.....	½ Day.....	Skyline Trail-Fairmount Blvd.-Woods St. Stairs	105
Dec. 20.....	1 Day.....	Salem Trip (for mistletoe)	23
Dec. 27.....	½ Day.....	Tualatin-Fulton	31
1915			
Jan. 3.....	½ Day.....	Clackamas Fish Hatcheries	61
Jan. 10.....	½ Day.....	Kings Hts.-Blasted Hill-Cornell Road....	85
Jan. 17.....	½ Day.....	Columbia Blvd.-St. Johns-Willamette Boulevard	75
Jan. 24.....	½ Day.....	Skyline Trail-Arlington Heights.....	116
Jan. 31.....	½ Day.....	Fulton Park-Palatine Hill-Oswego	60
Feb. 7.....	½ Day.....	Oswego-Oregon City (by hill route)....	70
Feb. 14.....	½ Day.....	Willamette Hts. to Barnes Road.....	65
Feb. 20-22..	2 Days.....	Seaside-Cannon Beach	47
Feb. 21.....	½ Day	Montavilla-Parkrose	40
Feb. 28.....	1 Day.....	Barnes Road-Tualatin Valley	50
Mar. 7.....	½ Day.....	Willamette Hts.-Willbridge	160
Mar. 14.....	1 Day.....	Oregon City-Coalca Pillar	71
Mar. 21.....	½ Day.....	Kendall-Mt. Talbot	116

Date 1914	Time Consumed	Locality or Route	Attendance
Mar. 28....	1 Day.....	Wapato-Chehalem Mt.	60
Mar. 31....		Moonlight Walk to Milwaukie	26
April 4....	½ Day.....	Rocky Butte	60
April 11....	1 Day.....	Sherwood-Hillsboro	34
April 18....	1 Day.....	Cape Horn-Mt. Pleasant	93
April 25....	1 Day.....	Bull Run-Aschoff's	88
April 28....		Moonlight Outing in Hills	134
May 1-2....	1½ Days...	Table Mountain	78
May 9.....	1 Day.....	Cottrell-Sandy R. Canyon	85
May 16.....	1 Day.....	Camas-Lackamas Lake-Vancouver	59
May 22-23..	1½ Days...	Cascades-Mt. Chinidere	99
May 23.....	1 Day.....	Cascades-Tanners Creek	29
May 29-31..	2 Days.....	Silverton-Silver Creek Falls	73
June 3.....		Strawberry Picnic (evening at farm)....	112
June 5-6....	1½ Days...	Patton-Cherry Grove	60
June 12-13..	1½ Days...	Multnomah Falls-Devil's Rest	44
June 19-20..	1½ Days...	Saddle Mountain	54
June 24.....		Moonlight Outing	60
June 27.....	1 Day.....	Steamboat trip up Columbia	165
Aug. 8.....	1 Day.....	Bonneville-Tanner Creek	24
Aug. 14-15..	1½ Days...	Multnomah Falls-Larch Mountain	74
Aug. 22.....	½ Day.....	Columbia River Beach	78
Aug. 28-29..	1½ Days...	White Salmon River Canyon.....	52
Aug. 4-6....	2½ Days...	Neah-Kah-nie Mt. and Tillmook County Beaches	64
Aug. 12.....	1 Day.....	Bridal Veil-Rooster Rock	71
Aug. 19.....	1 Day.....	Oregon City-Clear Creek-Barton	56
Aug. 23.....		Moonlight Outing	100
Aug. 26.....	1 Day.....	Council Crest-Garden Home	47
Oct. 3.....	1 Day.....	Forest Grove-Gale's Peak	42
Oct. 10.....	1 Day.....	Rooster Rock-Bull Run	36
Oct. 17.....	1 Day.....	Eagle Creek (on Cazadero Line).....	46
Oct. 24.....	1 Day.....	Holbrook-Hillsboro	18
Oct. 31.....	1 Day.....	Oregon City-Mulino	42

Notes and Correspondence

In addition to longer articles suitable for the body of the magazine, the editor would be glad to receoive brief memoranda of all noteworthy trips or explorations, together with brief comment and suggestion of any topics of general interest to the club. Descriptive or narrative articles, or notes concerning the animals, fish, birds, forests, trails, geology, botany, etc., of the mountains will be acceptable.

The club would like to secure additional copies of Masama of Volume I, NumbHer I, 1896; we hope that any member having extra copies will send them to the Secretary.

THE LARCH MOUNTAIN TRAIL. As one leaves Portland and travels up the Columbia Gorge over the new Columbia River Highway, the first considerable elevation that will be noted along the route is Larch Mountain. It lies well back from the river on the Oregon side, almost directly south of Multnomah Falls, and rises with gentle slope to an elevation of 4045 feet. The name is, in a sense, a misnomer, for no larch (*Larix*) is found on the mountain. The tree that grows there in abundance and from which the name of the mountain is derived is Noble Fir (*Abies nobilis*), which is known commercially as larch. Sad to say, the ruthless hand of the logger is fast denuding the mountain of some of its most stately groves of this truly noble tree.

This outlying spur of the Cascades has long been the mecca of would-be mountain climbers, novices in the game, who desire to test out their powers before essaying the more ambitious feat of ascending St. Helens, Adams or Hood. But more than this, the veterans have been wont to make frequent pilgrimages to this shrine, for the view obtainable from Larch Mountain is one of surpassing beauty and grandeur. Here one may look down upon, even though he may not enter, the great forest expanse of the Bull Run Reserve, while from out this setting of green Mt. Hood rears its white and rugged crest, with Jefferson to the south and across the Columbia to the north, Adams, St. Helens and Rainier.

The old route to Larch Mountain was by way of Bridal Veil and Palmer, a trip that could not be made comfortably in less than two days. With the coming of the highway, a new route was suggested, one that would not only shorten the distance to the summit, but would be infinitely more attractive and picturesque. Thanks to the enterprise of the Progressive Business Men's Club of Portland, assisted by S. and A. S. Benson and the Forest Service of the Government, a trail over this new route is now an accomplished fact.

This trail leaves the Highway at Multnomah Falls, crosses the Benson Bridge below the falls, climbs by numerous switchbacks to the rim of Columbia Gorge, follows for several miles the thread of Multnomah Creek, thence ascends to the crest of a semi-circular ridge that leads up to the summit. The total length of the trail is six and one-half miles and a fairly good walker can easily make the climb and descent in seven hours, including an hour for luncheon. Strong climbers have made the round trip in still shorter time.

Many have admired the grace and beauty of Multnomah Falls, sending its white streamers of spray down a sheer height of 607 feet. But few, until this new trail was completed, realized how much of scenic interest lay concealed above. A short spur from the trail leads to the top of the falls, from whence people on the Highway below look like mere specks of humanity. Returning to the main trail, one passes cascade after cascade and fall after fall, with delicate ferns and mosses, kept ever green by the mist from the stream, clinging to the canyon's walls. These upper falls are not so impressive as the main fall below, but all are beautiful. Several drop from a considerable height and in any other environment would be dignified with a name. Each seems to sing its own peculiar note and the effect, as one moves up the trail, so well expressed by Samuel Lancaster, the poet engineer of the Highway, is that of one great diapason.

Leaving the canyon of Multnomah Creek, the trail enters the forest. An excellent type of the Cascades forest it is, too. The tree student will note here

many fine specimens of Douglas Fir (*Pseudotsuga taxifolia*), Western Red Cedar (*Thuga plicata*), Western Hemlock (*Tsuga heterophylla*), Lovely Fir (*Abies amabilis*) and Noble Fir (*Abies nobilis*). Growing out of the rock on the very summit, there is a lone specimen of Western White Pine (*Pinus monticola*), and Dwarf Juniper (*Juniperus communis*) carpets the ground near by.

A refuge cabin, built of logs, has been constructed just below and west of the summit. The Government likewise has at this point a high watch tower, for use by the rangers in locating forest fires. Unfortunately there is no water on or very near to the summit, and this need should be supplied. A hydraulic ram and a quarter of a mile or so of pipe would solve the problem.

This article would, I feel, be guilty of serious omission if it did not contain some reference, however brief, to the Wahkeena Trail. This trail leads off from the Highway at Wahkeena Creek (formerly Gordon Creek) a mile or less west of Multnomah Falls, and connects with the Larch Mountain Trail at a point two miles back from the Highway. It is three miles in length and was constructed at considerable expense by S. Benson, being one of his numerous philanthropies. Its charm is scarcely less than that of the Larch Mountain Trail and, in a sense, this trail may be said to supplement the other. From its beginning at the Highway it follows the course of Wahkeena Creek to the point where this madcap little stream springs, in full volume, from the wall of Columbia Gorge, a thousand feet or more above the river, thence it leads easterly along the canyon wall and affords a fine view both up and down the Columbia.

A splendid three hours' walk for one who does not care to make the complete ascent of the mountain, is to ascend one of these trails to their point of junction, then descend by the other. Or one can, of course, by allowing an hour's additional time, make the climb to the summit by one trail and return by the other.

JOHN A. LEE.

THE MAZAMAS' EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

It was decided by the Executive Council of the Mazamas that the Club should be represented (inanimately) at the great Exposition at San Francisco. It was also thought appropriate that our exhibit should be installed in the Oregon State Building, as a chief object was to set forth the great natural scenic wonders of Oregon and adjacent parts of the Pacific Northwest, the habitat and stamping grounds of most of the two-legged specimens of the Mazama goat.

A special committee consisting of Mr. Rodney L. Glisan and Mr. H. H. Prouty, with the writer as chairman, was appointed to prepare and install a suitable exhibit. This was done in good time, and the Mazama exhibit was practically complete and in place for the opening day, February 20th. In this respect we excelled the great majority of the exhibitors, particularly those in the Oregon Building.

The essential parts of the Mazama exhibit were as follows: Twelve enlargements of photographs, five group views containing each from two to seven or eight natural size photographs, two large framed charts setting forth in words the purposes and activities of the Mazamas; besides these was the physical part of the exhibit, consisting of Swiss apline rope, alpenstock, ice axes, life belts, Mazama pennants, grease paint, snow glasses, boot calks and nails, also two old-time record boxes and a record book (that had served their purpose on some of Oregon's snowy peaks); besides these a good assortment of Mazama magazines was on display. All the pictures were appropriately framed.

The exhibit was first installed on the north side of the building, fronting on San Francisco Bay. The space between two entrance doors was taken by the Mazama booth, containing a showcase and other means of displaying the physical exhibit. The wall space here and also that along an incline leading up to the mezzanine floor was taken up by the pictures.

The location here proved to be very inferior, because of the poor light which was accented by the windows which the observer had to face. Therefore in July, at the time when so many Mazamas who had just been on the Mt. Shasta outing were "doing" the exposition, the Mazama exhibit was moved over to the southwest corner of the building. Here, next to the entrance to the moving picture theatre, better light was found, as well as sufficient space to allow placing without separation into parts.

In the final location the Mazamas' work has been viewed by thousands and hundreds of thousands of people, no doubt representing all the states and many foreign lands; and the aims, ideals and achievements of the membership have been placed before all.

W. P. HARDESTY.

HAVE INTERESTING TIME IN SELKIRKS. Dr. and Mrs. W. E. Stone, who were unable to attend the Shasta outing because of the absorbing interest of their program in the Canadian Rockies, write of their experiences as follows:

"After a brief sojourn in the annual camp of the Alpine Club which was held this year in the Ptarmigan Lake region, east of Laggan, we were so fortunate as to be invited to join Mr. and Mrs. A. H. MacCarthy for climbing in the Southern Selkirks near the head waters of the Columbia River. Mr. H. O. Frind of Vancouver, B. C., and Conrad Kain, the well-known guide, were also of the party. Three weeks were spent in the most delightful and successful mountaineering it has been our good fortune to experience. We first made an excursion up the south fork of the Salmon River into an unexplored section where we accomplished the first ascent of Mt. Ethelbert, the highest peak of the range, and discovered a beautiful high valley dotted with lakes and encircled by a group of eight snow peaks, all comprising one of the finest and most interesting regions to be found. A second trip took us up Horse Thief Creek to the region on the South Fork mentioned by Mrs. Parsons in the Sierra Club Bulletin, January, 1915. Here we found a magnificent alpine region. From our camp we were within striking distance of a dozen or more splendid peaks of upwards of 11,000 feet altitude surrounded by vast glaciers and snow fields. Here we made six first ascents including Jumbo and Delphine with four other unnamed peaks. Our expedition was fortunate in its strong climbing personnel and equipment and was favored with good weather. Not often is such a combination of mountaineering factors brought together or so well rewarded."

PROF. HORNADAY LECTURES. Under the auspices of the Oregon Fish and Game Commission, Prof. William T. Hornaday, director of the New York Zoological Park, delivered a stereopticon lecture in Library Hall, Portland, September 13th, having for his subject, "Shall We Increase Our Big Game on a Food Supply Basis?" Prof. Hornaday is one of the foremost advocates of game protection and propagation in the United States and his lecture was listened to by a large crowd of persons interested in outdoor life. Oregon remains one of the most fruitful fields for the kind of work suggested by Prof. Hornaday.

E. C. S.

HIGH PEAK FINALLY SCALED. New York, Sept. 25.—Dr. Andrew J. Gilmour announced today on returning from Alberta that he and Professor Edward W. D. Holway, of the University of Minnesota, had climbed to the summit of Mount Geikie, in Alberta. It was asserted that they were the first to attain the summit, which is 11,016 feet in altitude. The final ascent was made August 5 and the Doctor said that 5,000 feet of the climb was up a nearly sheer wall of ice and snow, in which they had to cut steps all the way.

NEWS DISPATCH.

RED-EYED VIREO IN OREGON. A song bird, heretofore unknown in the State of Oregon, but common east of the Rocky Mountains, the red-eyed vireo, was found by A. C. Shelton, field worker of the department of zoology of the University of Oregon, last August, during his survey in the Rogue River Valley and the north spur of the Siskiyou Mountains in the southern part of the state. Only three or four times, it is said, has this bird been found in the West. Mr. Shelton brought back 220 specimens of birds, animals and reptiles collected during his six weeks' trip.

NEW CLIMBING CLUB ORGANIZED. Preliminary steps have been taken in Hoquiam, Wash., for the organization of a mountaineering club to be known as "The Olympians." The object of the club will be the exploration and climbing of the peaks in the Olympic Mountains, Northern Washington. It is to be an organization similar to the Mazamas, Mountaineers and Sierra Club. Frank H. Lamb, president of the Hoquiam Commercial Club, is temporary chairman of the new organization. Considerable interest has been shown and it is anticipated that there will be a large membership. The first outing will be held in 1916 in the Olympics.

TRAILS CLUB IS ORGANIZED. The Trails Club of Oregon, having for its purposes the keeping of present trails open and the building of new trails in the mountains of the state, was organized in September on the summit of Larch Mountain. Temporary officers were chosen at that time and at a more formal meeting in Portland the following officers and directors were chosen: S. C. Lancaster, president; Todd Hazen, first vice-president; Henry R. Hayek, second vice-president; C. J. Hogue, treasurer; M. E. Smead, secretary, and T. H. Sherrard, George A. Jackson, A. M. Prentiss, W. J. Hofmann and Dr. H. F. Nichols, directors. One of the first things which the club hopes to accomplish is the building of a substantial clubhouse cabin on the summit of Larch Mountain and the installation of a hydraulic ram by which water for drinking and cooking purposes can be gotten to the top of the peak. At present water is carried from half a mile to a mile and a quarter, depending upon the season of the year.

PANORAMIC VIEW OF RAINIER NATIONAL PARK. A panoramic view of Mount Rainier and the entire Rainier National Park, showing the characteristic features of the landscape, has been issued this past summer by the Department of the Interior, under direction of Secretary Franklin K. Lane. This panorama shows in a striking manner the great central ice mass of the peak and the ridges that surround it. Ten colors were used in printing, the ice being shown in light blue, the meadows and valleys in light green, the streams and lakes in blue and the cliffs and ridges in combinations of colors and the roads in light brown. The lettering is printed in light brown which is easily read on close inspection, but which merges into the basic colors when the sheet is held at some distance. This view, which may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 25 cents, measures 19 by 20 inches, and is on a scale of one mile to the inch. E. C. S.

GEOLOGIST RESIGNS HIS CHAIR. Dr. John C. Branner, president of Leland Stanford University, Palo Alto, California, on June 28, 1915, announced his resignation as head of Department of Geology and Mining, a post he had occupied for twenty-three years. He was succeeded by Dr. Bailey Willis, of the United States Geological Survey, Washington, D. C. Dr.

Branner, however, continues as president of the university. Dr. Bailey Willis is one of the best known of the United States geologists and has done much work in the West, particularly at Mount Rainier. The rock wall at the head of Carbon Glacier on the north side of Mount Rainier was named "Willis Wall" after Dr. Willis. It is probably one of the best known parts of the mountain and was within sight of the Mazama camp last year at Mystic Lake Park.

ANTELOPE IN WILDS CAUGHT BY MOVING PICTURE CAMERA. Some wonderful wild antelope moving pictures taken in Lake County, southeastern part of Oregon, were brought to Portland on September 29th by William L. Finley, state biologist. The pictures were taken from the leeward side of a sagebrush shelter at Jacks Lake, a water hole in the high plateau desert in Lake County, about 20 miles east of Klamath Falls. Mr. plateau desert in Lake County, about 200 miles east of Klamath Falls. Mr. Finley believes that the pictures will be to American wild antelope, only a few herds of which now exist, what the famous Paul Rainey African Hunt pictures are to African wild animal life. Mr. Finley and three others started into the desert country from Klamath Falls on September 18, armed only with a moving picture camera, to investigate the condition of the wild antelope in Klamath and Lake Counties and to obtain pictures of them, if possible. Those with Mr. Finley were S. G. Jewett, one of the field men of the United States biological survey; R. B. Horsford, of the state biology department, and Frank Ankeny, of Klamath Falls. The pictures were obtained after infinite hard work and patience. For four days the party hid behind their screen of sage brush at the water hole before they could get the pictures they wanted.

"It was the hardest proposition I ever tackled with a camera," said Mr. Finley upon his return. "It was easy enough to get within shooting distance, but camera range was an entirely different matter. Let the herd get the slightest scent, or even become suspicious, and they were away in a stampede. One of the principal objects of the trip was to ascertain the condition of the antelope in this vicinity, with a view to arranging for their protecton. Only a few hundred of the thousands that once roamed this part of Oregon are left. All told, I don't suppose there are more than 1000 to 1500 left. A few years ago there were perhaps 10,000 antelope in Oregon. The problem of their protection will be a difficult one, for, like the buffalo, they disappear with civilization. We saw several scattered bands in the course of the trip, and on September 21 we counted 142 antelope. That was the most we saw in any one day. They were wild and shy, for the sheepherders have been shooting at them. This made the moving picture operations all the more difficult."

The pictures were taken from a distance of about 40 yards with a telephoto lens and between 1200 and 1500 feet of film were exposed and about 600 feet of good pictures obtained. These pictures will be used by Mr. Finley in his lectures and educational work about the state. It is Mr. Finley's intention to propose to the Oregon Fish and Game Commission that a $100 reward be offered for the arrest and conviction of any one killing an antelope.

NEW PORTLAND AND HIGHWAY FOLDER. The Portland Chamber of Commerce has just issued a handsome folder of "Portland, Oregon, featuring the Columbia River Highway." It is largely a pictorial folder, done in three colors, and carries a Portland road map that is intended to guide autoists by the best and most direct routes to any of the boulevards surrounding the city. The front page carries pictures of Portland's down-town streets, the harbor, the Rose Festival, Portland homes, three larger pictures of Crater Lake and a photograph of Lake Tahkenitch, one of the beautiful bodies of fresh water near Marshfield. The inside page shows a relief map of the state, featuring the Columbia River Highway and the Pacific Highway. The map was drawn by Fred A. Routledge, a member of the Mazamas. The reading

matter on the pamphlet is devoted to a description of the Highway, distances between points of interest and between cities along the Pacific Highway and concise information about Portland.

GOOD ROADS HAVE DOUBLED NUMBER OF TOURISTS WHO VISITED MOUNT RAINIER.

More than 34,000 persons, of whom 11,000 were from outside the state of Washington, visited the Mount Rainier National Park last season. The record of travel for the 1914 season was 15,000, the marked increase in attendance being attributed largely to the opening of automobile roads into the Park where flowers and glaciers meet. Plans are under way, it is said, to consolidate the stage lines operating into the Park so that railroad companies may sell tickets which will provide for an automobile tour of the Park. The automobile highway from Tacoma to the Park is 56 miles in length and is a most attractive drive.

Advocates of the plan to construct a highway around the base of Mount Hood believe that Portland and Oregon would benefit from such a highway as have Tacoma and Seattle from the Rainier highway. Portlanders who are familiar with the scenic charms of the Columbia River gorge and the surveyed route of the proposed Mount Hood boulevard declare that Oregon's scenic highways will not suffer in comparison with the roads into the Park on the slopes of Mount Rainier.

"I love and understand
One joy: with staff and scrip
To walk a wild west land,
The winds my fellowship."

—Lionel Johnson.

Book Reviews

"In The Oregon Country." "In the Oregon Country; Out-Doors in Oregon, Washington and California, Together with some Legendary Lore, and Glimpses of the Modern West in the Making"—This is the somewhat lengthy though accurate title of one of the books of the year devoted to our far western country. George Palmer Putnam is the author and G. P. Putnam's Sons, the publishers. Whether the author is one of the "Sons" in this well known firm of publishers or the duplication of names is a mere coincidence, is not disclosed. The book is one of 169 pages, divided naturally according to subject into an even dozen chapters, and contains 52 fine halftone illustrations. There is an introduction by James Withycombe, Governor of Oregon.

The chief merit of a book review is, or should be, fairness, lack of bias. But when the reviewer notes on one page a complimentary though well deserved referenc to Marion Randall Parsons, his friend and associate in many a Mazama camp; on another a glowing though no less deserved tribute paid to his friend, Grant Humes, the Laird of the Olympics; on another a picture of his usually sedate co-hiker, Rodney Glisan, sliding down a steep snow-slope "on his panz," as our good friend Dr. Barck would say, and wearing an expression which bespeaks, all too plainly, the fact that the snow is not only cold but wet; and on still another a picture of the reviewer himself at the van of a long line of Mazamas in the ascent of Mt. Baker, he, the reviewer, will be pardoned if, through a natural vanity, his judgment of the book is colored in favor of the author. However, the opinion of a truly judicious reviewer would be, we think, that the work is a valuable addition to the literature of the West. The style, as well as the subject matter of the book, is entertaining. It breathes and instills the true spirit of the out-of-doors, and possesses, in a marked degree, the great merit of faithfulness of portrayal.

Each chapter may be considered complete in itself and several of them, as the author informs us, earlier appeared in Recreation. Considerable space is given to the opportunities for home-building in the sparsely settled sections of the West. In this the author carefully avoids the failing of many Western writers, the tendency to boom, and truly pictures the difficulties as well as the advantages that the settler may expect to meet. In one chapter, entitled "Uncle Sam's Forests," fitting recognition is accorded the Forest Service of the Government in its work of opening up our mountains and making them accessible as playgrounds for the people. One interesting chapter is devoted to a canoe trip on the Deschutes, another to an ascent of Mount Olympus, another to "A Summer in the Sierra," and there are reproduced in the book two of our most interesting Indian legends, "The God Mountain" (Rainier) and "The Legend of the Dalles."

John A. Lee.

Putnam, G. P. *In the Oregon Country.* Ill. 1915. $1.75. Putnam.

"Peaks and Precipices." Every mountaineer will feel a thrill in reading the accounts of the mountain ascents of this experienced climber. Not a boastful sentence in the entire text, but one can easily read between the lines and realize that the author possessed rare courage and was inspired by the highest ideals of mountain adventure. Practical details regarding preparation and caution in climbing are casually interspersed in the fascinating picture of awe-inspiring climbs. No one can read a chapter without comprehending what it is that lures and charms the mountaineer. To the skeptic, it is a revelation; to the novice, a lasting inspiration. You are with him as he climbs, and he makes you see the mountan in its changing moods and you share the physical and spiritual joys of the climber.

R. L. Glisan.

Guido Rey. *Peaks and Precipices: Scrambles in the Dolomites and Savoy.* 1914, $3.50 net. Dodd.

"WHERE ROLLS THE OREGON." It is always interesting, and frequently profitable, "To see ourselves as others see us." "Where Rolls the Oregon" is, as the author says, "A group of impressions of the vast outdoors of Oregon," the impressions of a Bostonian, gathered during a summer in the state, from the Three Arch Rocks off the coast of Tillamook County to the Blue Mountains, and from the summit of Hood to Malheur Lake. Like most of our Eastern friends who are not familiar with this part of the country, the author continually betrays his astonishment at the greatness of the state, its splendid resources, its mountains and lakes and sagebrush deserts, and its wild animal and bird life. It is the latter that forms the main theme of the book.

Many of the author's expeditions were made in the company of Mr. W. L. Finley, state game warden. There are thrilling accounts of the bird colonies on the Three Arch Rocks and in the Malheur Lake Reservation, and intimate little stories, delightfully told, of wild creatures everywhere. It is a deep and tender love for all wild things, revealed on every page, that gives the book its great charm.

MARTHA OLGA GOLDAPP.

SHARP, DALLAS LORE. *Where Rolls the Oregon.* Il. 1914. $1.25. Houghton.

"TEN THOUSAND MILES WITH A DOG SLED." This book is even more enjoyable than the author's Ascent of Denali. It is filled with practical information about the interior of Alaska, chiefly concerning the valley of the Yukon and its tributaries. Light is thrown upon the problems peculiar to the lives of these Indians and Eskimos, who are so remote from civilization. The educational methods of the United States are criticised rather adversely and also the ineffectual enforcement of the liquor laws.

Dr. Stuck had many interesting adventures while acquiring his first-hand knowledge of native life in this inaccessible territory. Conditons of travel were most severe; many obstacles were encountered, and there were frequent mishaps on the journeys. The Alaskan forests, the tundras, the snowbound rivers, are all most clearly pictured. The entire book is a genuine storehouse of exciting adventures, told by a man who has a rare gift for description, whether it be people or places.

M. C. H.

STUCK, REV. HUDSON. *Ten Thousand Miles With a Dog Sled.* Il. 1914. $3.50. Scribner.

"YOSEMITE AND ITS HIGH SIERRA." The Guardians of the Columbia has proved an attractive reference book for the Mazamas, and its author, John H. Williams, has recently published another noteworthy work of practical interest. In his book, entitled "Yosemite and Its High Sierra," Mr. Williams in five profusely and beautifully illustrated chapters covers the Yosemite National Park, the Canon of Yosemite, the California Sky Line, Tuolumne Canon, Hetch Hetchy and the King of the Forest. Yosemite Valley is but a small unit of the Yosemite National Park and the book gives one a clear insight of the entire region. The text covers a wide range—glacial and geological data, Indian traditions, flowers, forests, roads and trails. It is edited in his usual interesting and instructive manner and lavishly illustrated with fascinating photographs.

R. L. GLISAN.

JOHN H. WILLIAMS. *Yosemite and Its High Sierra.* 1914. Edition de luxe, $2.50 net; library edition, $1.50 net; news stand edition, $1.00 net.

"GUIDE TO THE NATIONAL PARKS OF AMERICA." The author of this convenient little guide tells us in the preface that he has "endeavored to include all necessary information as to what each of the parks included offers the tourist, and the various ways of seeing these features to the best advantage. These parks combine the lure of the outdoors, the appeal of tremendous scenic magnificence, the attraction of geological and archeological study and the observation of wild animal life, and the stimulus of being brought face to face with Nature at her best and freest." Americans may well devote some of their sight-seeing time to becoming acquainted with their own country in its most typical forms.

The book covers eight principal national parks in America. These contain about 6800 square miles, not including the Grand Canyon, which is, strictly speaking, a forest reserve. There is a chapter devoted to the Hot Springs of Arkansas, and one on the national parks of Canada, and in addition, illustrations and four folding maps.

M. C. H.

ALLEN, E. F., Comp. *Guide to the National Parks of America.* Il. 1915. $1.00. McBride.

"OUR FRIEND JOHN BURROUGHS." Twelve years of acquaintance with Mr. Burroughs' extracts and books, and then twelve years of acquaintance with Mr. Burroughs—during which time she had the privilege of helping him with his correspondence, and visiting him at Slabsides and Riverby—have enabled Miss Barrus to give us a near and intimate view of "Our Friend, John Burroughs." Other writers have given us certain aspects of this great nature writer but none has allowed us to enter into such close companionship with him.

The first chapters are full of interest. We learn of the world-wide appreciation of his books. We learn his many nicknames: "John of the Birds," "Oom John," and others. With her we visit him at Slabsides and enjoy the dinner cooked by the host's own hands over an open fire. We are introduced cleverly to the beautiful surroundings of this retreat of the writer and we easily understand this great man's love of the quiet, peaceful life in which there is ample time for the enjoyment of the good things nature brings with each season.

One of the greatest attractions of the book is a series of letters, autobiographical in character, which Mr. Burroughs wrote at the request of Miss Barrus, to be published in this book. Through them we enjoy the out-of-door life of his boyhood days—sugar making in the spring woods, flower friends as they appeared upon the hills, and the long hours spent with hook and line by neighboring streams.

Then comes that most delightful chapter wherein are given glimpses of "John of the Birds" and "John of the Mountains"—John Muir, in the Petrified Forests of Arizona, at the Grand Canon of the Colorado, and in Yosemite. Mr. Burroughs and his party are the guests of Mr. Muir and have made a special trip from the East to view these wonders with him. It is through the many small incidents of this trip that the sharp contrast in the personalities of these two men is clearly shown.

The book is closed by a chapter showing Mr. Burroughs' great contribution to the happiness of his fellow-men. One sees that a life such as his in which the simple out-of-door pleasures are sought may result in more real happiness than a life spent amid the luxuries that money can buy. He would have life trimmed of all needless causes of worry. He teaches the enjoyment of things near at hand. His best writings have not been in appreciation of wonders in far lands. They have been upon the beautiful small happenings of Nature which all may enjoy if they but cultivate an observing eye.

LOLA CREIGHTON.

BARRUS, CLARA. *Our Friend, John Burroughs;* including autobiographical sketches by Mr. Burroughs, with illustrations from photographs. 1914. $2.00. Houghton.

"Winter Sports In Switzerland." Much has been written of Switzerland in summer but comparatively little of its aspects in winter. Mr. Benson is an authority on the sports which he discusses. Although his style is, at times, that of the amateur rather than that of the finished craftsman, he manages to make his readers feel the joy of the different pastimes of a Swiss winter. Various methods of tobogganing, ice-hockey, ski-ing, curling and skating are excellently treated, with suggestions in regard to the player's equipment for each game.

The book contains many good illustrations in black and white. These are more attractive than the color-process plates of the sports.

M. C. H.

Benson, E. F. *Winter Sports in Switzerland.* Il. 1913. $4.00. Dodd.

"Among the Canadian Alps." In his book, Among the Canadian Alps, Mr. Burpee shows us some of the most beautiful mountain scenery in the world. The title covers both the Selkirks and the Canadian Rockies. His account of mountain exploration from Niverville in 1751 to the conquest of Mt. Robson by Kinney and Phillips in 1909 is replete with adventure. There are many interesting photographic illustrations, as well as maps and bibliographies.

M. C. H.

Burpee, L. J. *Among the Canadian Alps.* Il. 1914. $3.00. Lane.

"The Conquest of Mount Cook and Other Climbs." Miss Du Faur, after a girlhood experience of climbing alone among the hills of Australia and New Zealand, gradually acquired the skill and strength to attempt the first complete traverse of Mount Cook in New Zealand. This is a record the most audacious climber can well be proud of, as anyone may judge from a perusal of her fascinating narrative corroborated by the impressive photographs which illustrate the text.

It is interesting to note her comments on the mental and nervous tension of a climb by a person in good trim compared to the experience of a trained nurse on a dangerous case. The climb over, the tension ceases and one is left with the beneficial results of the invigorating air and the healthy excitement of a big climb. If anyone questions the ability of the fair sex to negotiate a stupendous ascent, the perusal of this book will dispel any doubt.

R. L. Glisan.

Du Faur, Freda. *The Conquest of Mount Cook and Other Climbs.* 1915. $4.50 net. Scribner.

"Through the Grand Canyon From Wyoming to Mexico." Only four other successful journeys through these wonderful canyons are recorded before the Kolb brothers made the fifth one in 1911, for the purpose of securing photographs for moving picture films. The vivid pictures provide a record of the entire trip through the gorges of the Green and Colorado rivers. They were nearly all taken under thrilling conditions with the boat whirling through seething rapids. Great strength and courage were required to accomplish this feat which has cost the lives of many other explorers. The adventures of the two brothers are narrated in a straightforward, unassuming way that is at the same time entertaining.

M. C. H.

Kolb, E. L. *Through the Grand Canyon From Wyoming to Mexico.* Il. 1915. $2.00. Macmillan.

"Recollections of An Old Mountaineer." The author, a member of The Alpine Club, gives an enthusiastic account, from his diaries, of twenty-six seasons spent among the mountains of Switzerland. He says, "Year after year I went into the mountains, jaded, worried, and quite out of heart for next term's work. And year after year the Eternal Hills healed the sore mind, made worries seem but small things after all, and gave me heart again by giving me good comrades and true. To those who love the mountains, vacations among them are far more than times of relaxation and pleasure. What they have been to me, I try to express here."

The climber is given good advice in abundance, is admonished in regard to breaches of mountain propriety, and is warned against taking solitary excursions. Interesting photographs add to the reader's pleasure in the book.

M. C. H.

Larden, Walter. *Recollections of an Old Mountaineer.* Il. 1911. $4.00. Longmans.

"October Vagabonds." This delightfully named book is a pleasant blending of verse and prose by an author who writes notable prose, yet "who finds it easier to tell the strict truth in poetry rather than in prose." Mr. Le Galliene and a young French artist, after camping together in western New York until the first real Autumn storm drives them homeward, ramble across country toward the city until the painter's illness ends the journey on "the open road." The mild daily adventures of the pair are chronicled with many imaginative touches that set the weary city-dweller longing for "the twelve wells and seventy palm trees of Elim." However, as a substitute for Baedeker, the directions of the two travelers would not be reliable, as they say, "Anyone following our guidance would be as liable to arrive at the moon as at New York. In fact, we not infrequently inquired our way of a bird, or some friendly little dog that would come out to bark a companionable good day to us from a wayside porch."

"As a matter of fact, I had inquired the way of the bluebird mentioned a little way back, and it may be of interest—to ornithological societies—to transcribe his answer—

The way of dreams—the bluebird sang—
  Is never hard to find
So soon as you have really left
  The grown-up world behind.

* * * * *

Then is your foot upon the path,
  Your journey well begun,
And safe the road for you to tread,
  Moonlight or morning sun.

* * * * *

For destination yonder flower,
  For business yonder bird;
Aught better worth the travelling to
  I never saw or heard."

M. C. H.

Le Gallienne, Richard. *October Vagabonds.* Il. 1911. $1.50. Kennerley.

"The Yosemite." John Burroughs, in commenting on this book, says: "While giving us a guide-book to the Yosemite, he has given us a pretty good guide to John Muir. It is a Muir book, and no other man could have written it. Probably no other man in this country has his enthusiasm for mountains and glaciers and waterfalls and big trees united with so rare a literary gift."

The venerable scientist was an indefatigable explorer and painstaking student of the great western mountains for over fifty years. This book groups together his experiences and feelings during his leisurely tramps through the valley. Unusual and incredible occurrences were witnessed by Mr. Muir's watchful eyes. His account of how he saw the wind arrest and suspend the water from the great Yosemite Falls is wonderful. "It was neither blown upward nor driven aside, but simply held stationary in mid-air, as if gravitation below that point in the path of its descent had ceased to act. The ponderous flood weighing hundreds of tons was sustained, hovering, hesitating like a bunch of thistledown, while I counted one hundred and ninety. All this time the ordinary amount of water was coming over the cliff and accumulating in the air, swedging and widening and forming an irregular cone about seven hundred feet high, tapering to the top of the wall, the whole standing still, resting on the invisible arm of the North Wind. At length, as if commanded to go on again, scores of arrowy comets shot forth from the bottom of the suspended mass as if escaping from separate outlets."

Personal experiences with earthquakes and floods gave him data for scientific reasoning about the valley. The many birds, beautiful flowers and wonderful trees in the park are described with great detail. Good maps and photographs, as well as routes and dates, make the book valuable for anyone intending to see California's great playground.

M. C. H.

MUIR, JOHN. *The Yosemite.* Il. 1912. $2.40. Century.

"THE MOUNTAIN TRAIL AND ITS MESSAGE." None but a lover of the outdoors could have written this charming essay on the message of the mountain trail. The path itself, with its ups and downs, its stretches of sunshine and shadow, its twists and turns, is intimately described.

The author, as a member of the Sierra Club, has had abundant opportunity to experience the many joys of tramping in the highlands of California. He tells us, simply and earnestly, what the mountain trail means to him—tells us what we ourselves have felt, yet have been unable to express in words. He finds many parables in the trail, "but first of all the parable of the higher life." Following the trail of the ideal means, ofttimes, hardship, poverty—perchance defeat in the eyes of the world. "But it is the men who have lived such lives, who have moved the world, and they have not been without their reward—beautiful flowers bloom for them which the men of the dusty road below know not of."

A valuable lesson for every mountaineer to learn is one that Mr. Palmer received from John Muir. "There are always some people in the mountains who are known as 'hikers.' They rush over the trail at high speed and take great delight in being the first to reach camp and in covering the greatest number of miles in the least possible time. They measure the trail in terms of speed and distance." Mr. Muir disliked this exceedingly, and said that people ought to saunter in the mountains—not "hike." He gave a characteristic definition of sauntering—one that all walkers should heed. He felt that it is infinitely better to saunter along the way, becoming acquainted with the trees and flowers and birds and enjoying the companionship of congenial people, rather than to rush along at breakneck speed, seeing nothing but the dust of the road and hearing nothing but the grind of hob-nailed boots on the trail.

M. C. H.

PALMER, A. W. *The Mountain Trail and Its Message.* Il. 1911. $0.50. Pilgrim Press.

During the years 1909, 1910, 1911, and 1913 the National Geographic Society sent expeditions to Alaska to make scientific surveys of the glaciers of Yakutat Bay and Prince William Sound. This is a particularly splendid field for such

work, as Alaska has the largest glaciers in the world outside of Greenland and the Polar regions.

This book gives the results of these investigations. The authors write with authority because both have been members of former United States Geological Survey parties in Alaska. Mr. Tarr has also made extensive observations of the glaciers of Greenland, Norway, Spitzenbergen and the Alps. Much information is given as to the processes of glaciation and a new theory is offered in regard to the effect of earthquakes and volcanic action upon glaciers. Abstracts from previous reports of the government expeditions of 1905 and 1906 are included and careful reference made to all authorities quoted. The volume is well illustrated and contains good maps. The style is good and the treatment of the subject is exhaustive. It is a very valuable addition to the available literature on glaciers. BUELAH F. MILLER.

TARR, RALPH STOCKMAN, and MARTIN, LAWRENCE. *Alaskan Glacier Studies of the National Geographic Society in the Yakutat Bay, Prince William Sound and Lower Copper River Regions.* Il. 1914. $5.00. National Geographic Society.

Either one of these little volumes would prove a delightful addition to any camper's knapsack. Both are collections of out-of-door verse, full of the spirit of Nature in her many aspects. The "Gypsy trail" contains more poems than the "Open road" and groups them somewhat differently. The poems are, for the most part, those of older writers such as Shelley, Wordsworth and Emerson. There are included, however, several of the verses of such contemporary writers as Bliss Carman, Josephine Peabody, and Yeats. It is to be regretted that such poets as Kipling are not represented. The "Open road" contains selections of equal charm. There are fewer poems in this volume and like the "Gypsy trail" they are not written by present day writers. Nevertheless, these are books that will strongly appeal to the lover of the woods, the hills, the open road, and the trail. BUELAH F. MILLER.

GOLDMARK, P. D., and HOPKINS, MARY, *Comps. Gypsy Trail: an Anthology for Campers.* 1914. $1.25. Kennerley.
LUCAS, E. V., *Comp. Open Road; a Little Book for Wayfarers.* $1.50. Holt.

"THE ROCKY MOUNTAIN WONDERLAND." One of the most inspiring of the new books that publishers brought forth to add pleasure to the thousands of Easterners who crossed the continent to the Pacific slope this year is "The Rocky Mountain Wonderland," by Enos A. Mills, a fellow Mazama, and the man to whom credit is given for the establishment of the Rocky Mountain National Park in Colorado. Mr. Mills is to the Rockies what John Muir was to the Sierras; he knows the mountains and writes of them very sympathetically and understandingly. His book gives much geographical data that are desirable, but it is not merely a guide book. Mr. Mills narrates many of his personal experiences in the mountains in a way which stimulates the reader's interest and holds his attention. That Colorado has one thousand mountain peaks that rise more than 10,000 feet in the sky, and that about 150 of these are higher than 13,000 feet in altitude, and that there are more than twice as many peaks of 14,000 feet in Colorado as in all the other states of the Union, are some of the interesting, and little known, facts brought out in the preface to this new and interesting book. The illustrations are largely from Mr. Mills' own photographs, he being one of the best known photographers in the Rockies. E. C. S.

The Rocky Mountain Wonderland. By ENOS A. MILLS. Houghton Mifflin, New York. $1.75.

The Mazamas

The mission of the Mazamas is important. It is to stimulate in people a love of the mountains and to awaken an interest in the study of them; to disseminate authoritative and scientific information concerning them; to aid and encourage the preservation of the forests and other features of mountain scenery in their natural beauty; and yearly to accomplish something which, besides reflecting credit upon the members, should benefit the world. In this latter regard we have in mind the furthering of the sciences of geography, geology, botany, topography, climatology, and zoology; and furthermore, by inculcating the habit of breathing fresh air, the improvement of the national health.

The society was organized on the summit of Mount Hood (11,225 feet) on July 19, 1894. On that day 193 persons, of which 38 were women, climbed to the summit; there were 105 charter members. The success of the expedition and its uniqueness were at once noticed in all parts of the mountaineering world.

The name "Mazama" is derived from the name of the mountain goat. Webster's Dictionary: "Mazama. A goat-like antelope (Haplocerus Montanus) which makes its home high up among the pinnacles and glaciers of the Cordilleran Ranges of Western America."

Any person of good character who has climbed to the summit of a snow peak on which there is at least one living glacier and the top of which cannot be reached by any other means than on foot is eligible for membership in the society; the annual dues are $3.00; no entrance fee. Following is a list of members of the Mazamas:

Abbett, J. T., 1398 Willamette St., Eugene.
Abel, A. H., 502 Worcester Bldg., Portland.
Action, Harry W., 519 W. 121st St., New York.
Action, Mrs. Harry W., 519 W. 121st St., New York.
Adams, Loring K., 730 Chamber of Commerce.
Adams, Dr. W. Claude, 1010 E. 28th St. N.
Adam, Richard, 344½ Alder St.
Aitchison, Clyde B., Court House.
Akin, Otis F., 919 Corbett Bldg.
Allen, Arthur A., Portland Rowing Club.
Almy, E. Louisa, care H. L. Johnson, Glendive, Mont.
Amos, Dr. Wm. F., 1016 Selling Bldg.
Andersen, Dr. Fredk., Orenco, Ore.
Anderson, Leroy E., 213-14 Northwestern Bank Bldg.
Anderson, Louis F., 364 Boyer Ave., Walla Walla.
Applegate, Elmer I., Klamath Falls, Ore.
Aronson, David A., 294 E. 39th St.
Ash, Matilda L., 785½ E. Main St.
Atlas, Chas. E., 423 City Hall.
Ayer, R. W., 131 E. 19th St.
Atkinson, R. H., City Pass. Agt., O.-W. R. & N. Co.
Ash, Lena, 785½ E. Main.
Baker, Lydell, 239 E. 60th.
Backus, Louise, 675 E. Alder St.
Backus, Minna, 675 E. Alder St.
Bailey, Vernon, 1834 Kalorama Ave., Washington, D. C.
Ballou, O. B., 80 Broadway.
Banfield, Alice, 570 E. Ash St.
Barck, Dr. C., Humbolt Bldg., St. Louis, Mo.
Barnes, Jr., Chas. A., Box 636, Tacoma, Wash.
Bates, Myrtle, 448 E. 7th St.
Beattie, Byron J., 830 Rodney Ave.
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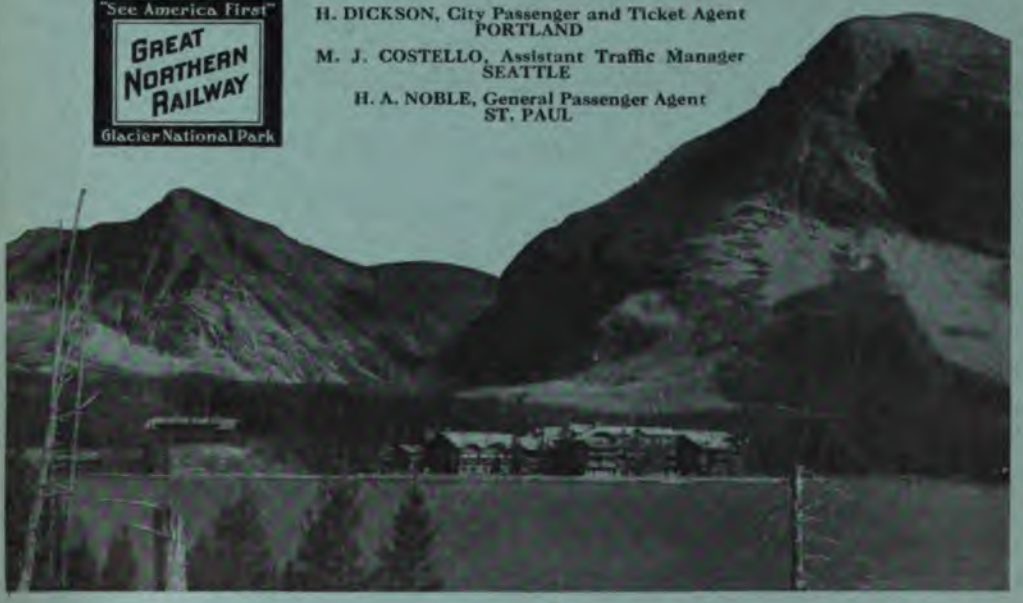

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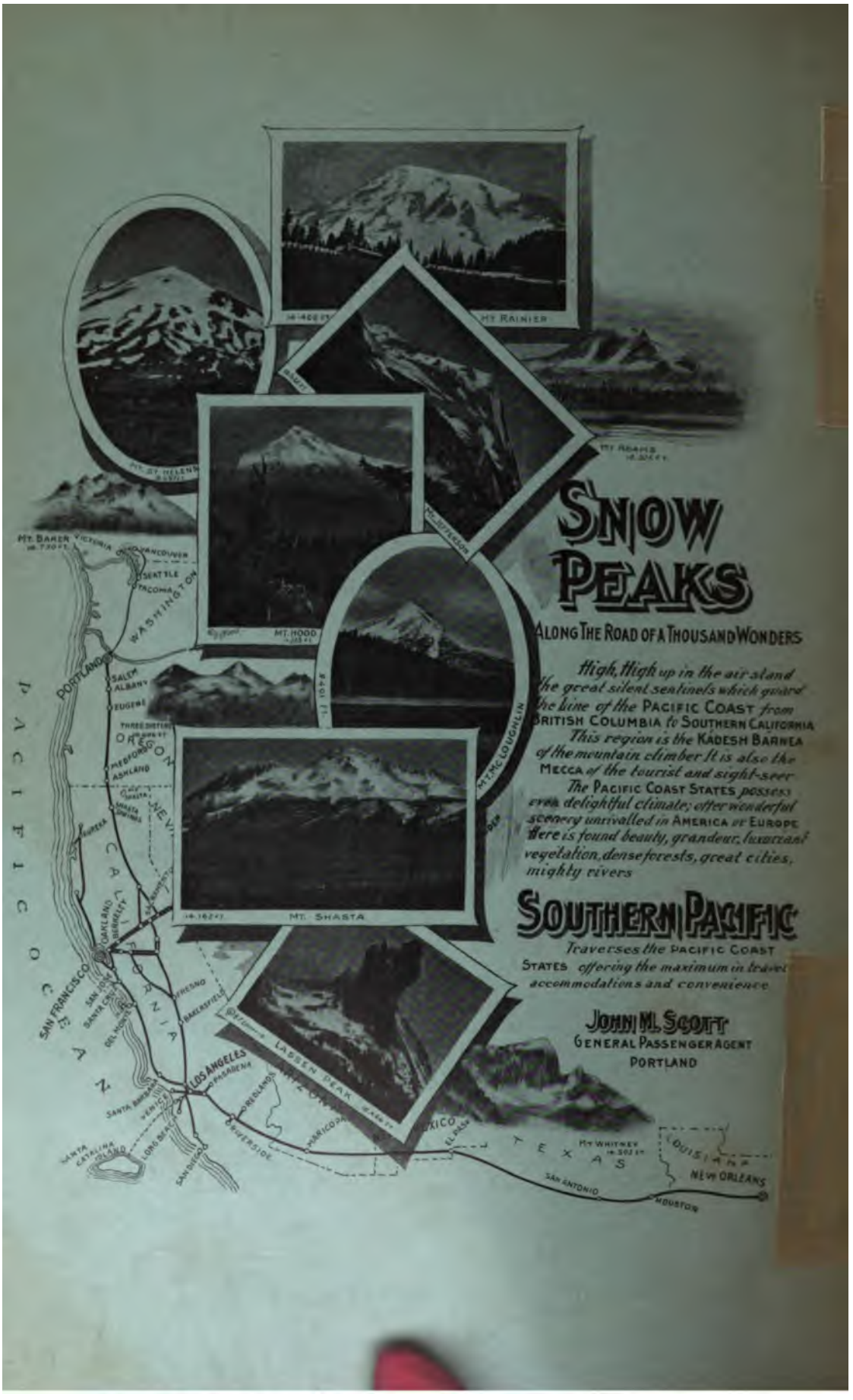
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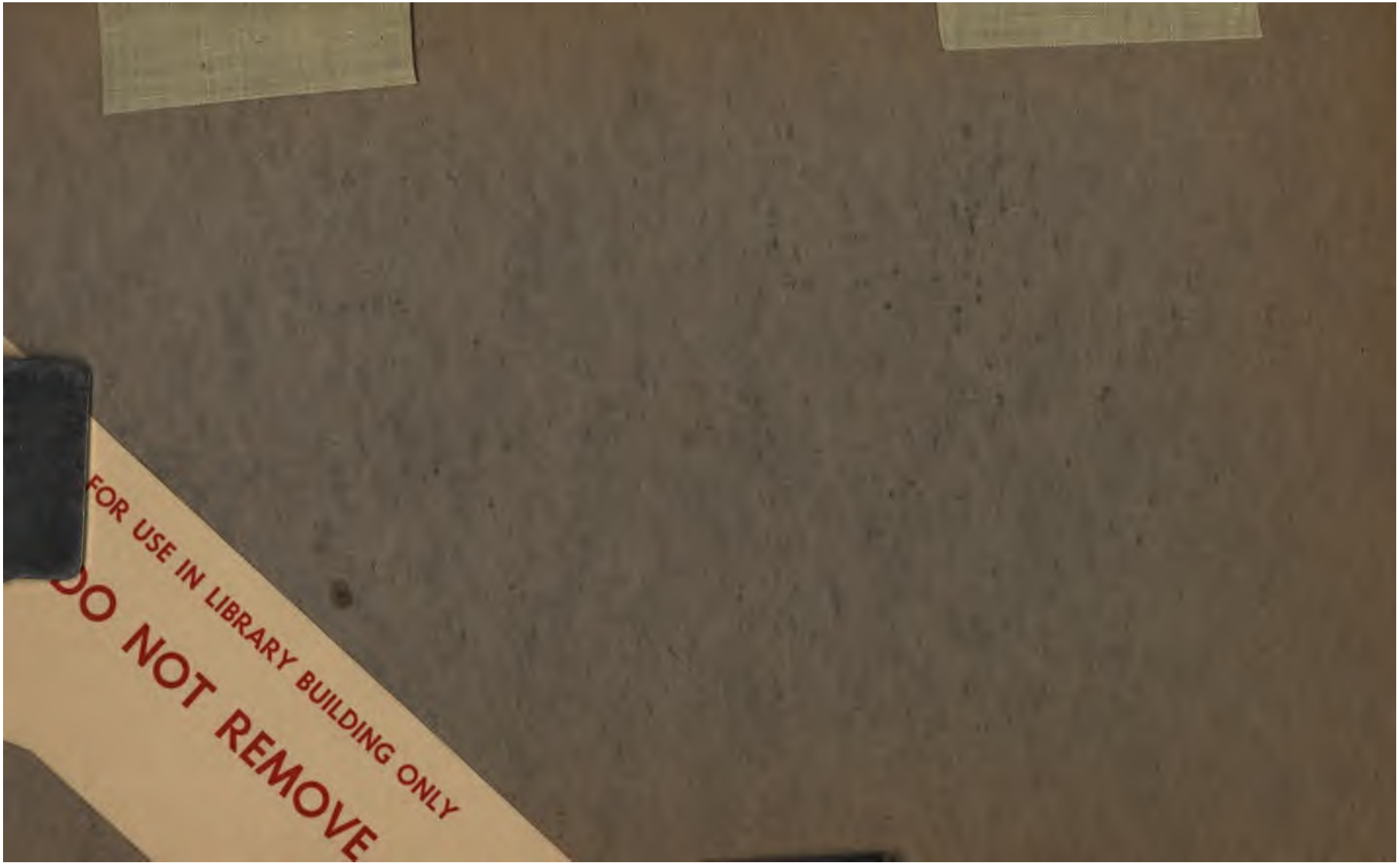
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